



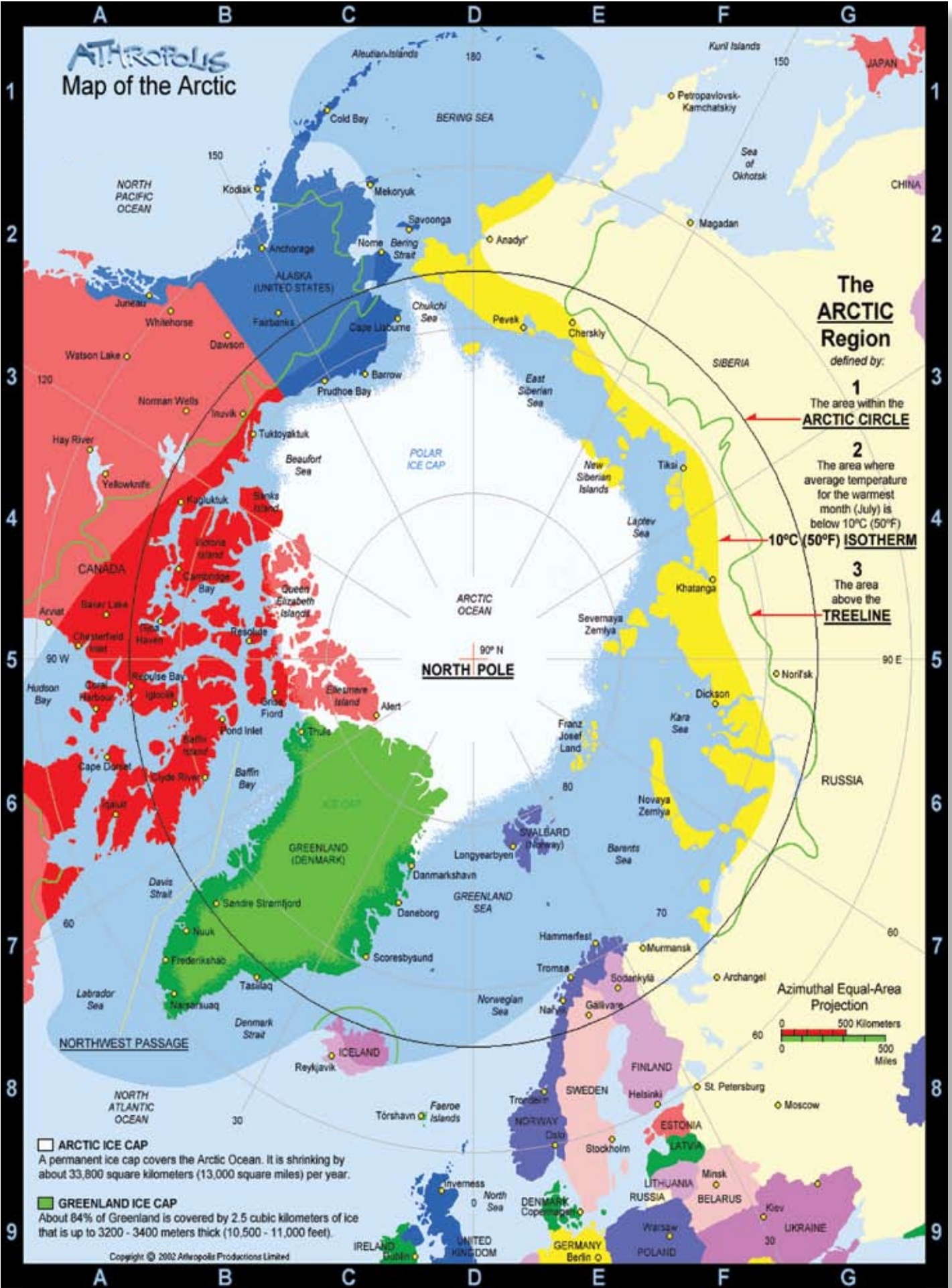
ARCTIC SECURITY IN THE 21ST CENTURY

IMAGE COURTESY OF NASA

CONFERENCE REPORT

Co-convened by The Simons Foundation
and the School for International Studies,
Simon Fraser University

ATHROPOLIS Map of the Arctic



The ARCTIC Region defined by:

- 1 The area within the **ARCTIC CIRCLE**
- 2 The area where average temperature for the warmest month (July) is below 10°C (50°F)
- 3 The area above the **TREELINE**

ARCTIC ICE CAP
A permanent ice cap covers the Arctic Ocean. It is shrinking by about 33,800 square kilometers (13,000 square miles) per year.

GREENLAND ICE CAP
About 84% of Greenland is covered by 2.5 cubic kilometers of ice that is up to 3200 - 3400 meters thick (10,500 - 11,000 feet).

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ARCTIC SECURITY in the 21st CENTURY

- The Arctic Environment and the Impact of Climate Change
- Military Security in the Arctic
- Human Security

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Published by the School for International Studies
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Co-convened by The Simons Foundation and School for International Studies, Simon Fraser University under the auspices of the Simons Visiting Chair in International Law and Human Security, School for International Studies, Simon Fraser University.

April 11-12th, 2008

Convenors of the Conference:

Jayantha Dhanapala, Simons Visiting Chair in International Law and Human Security,
School for International Studies, SFU

John Harriss, Professor, and Director, School for International Studies, SFU

Jennifer Simons, President, The Simons Foundation

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www.sfu.ca/internationalstudies/Arctic_Security_Conference.pdf

A C K N O W L E D G E M E N T S

We, as the co-convenors, want to thank the many people who contributed to the success of the conference and to this report. Ms Elaine Hynes, of The Simons Foundation, took on major responsibilities in regard to the organization of the conference with great efficiency and wonderfully good humour. We are very grateful to her, and also to Ms Paula Fairweather, who worked extremely hard alongside Professor Dhanapala, to ensure the success of the event. Ms Jan Berube and Ms Ellen Yap, of the School for International Studies, provided strong support. We are grateful, too, to Costa Dedikas for the design of the beautiful poster for the conference, and for the cover of this report; and we thank Nick Boudin for his very thorough work in the editing, design, layout and setting of the report.

We thank all the contributors to the conference, many of whom responded to our requests to them at very short notice, and we are extremely grateful to Randy Rydell for taking time out from his duties at the UN Office for Disarmament Affairs in order to serve as the rapporteur, and for completing such a very good summary of the discussions in record time. In addition to making their own presentations Professor Franklyn Griffiths, Mr Tony Penikett and Professor Mike Wallace all gave a lot of help in the organization of the conference, and for this too we are very grateful indeed. Finally, we would like to thank Dr Adele Buckley for her willing response to our request that she should write a brief report on the proceedings for publication in the scientific literature.

Jayantha Dhanapala, John Harriss and Jennifer Simons

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SPRING MELT NEAR TIGVARIAK ISLAND - PHOTO BY HARLEY D. NYGREN

Introduction

Jayantha Dhanapala

Former United Nations Under-Secretary General for Disarmament Affairs, Chairman of the UN University Council, president of the Pugwash Conferences on Science and World Affairs, visiting chair at Simon Fraser University in Vancouver

John Harriss

*Director, School for International Studies
Simon Fraser University*

In 2007, revelations about the impact of climate change on the Arctic, as well as actual events in the Arctic, led to this region becoming the focus of international attention. Recognizing the importance of the subject to both national and global affairs, Simon Fraser University's nascent School of International Studies decided to engage in a voyage of intellectual exploration by examining the different aspects of Arctic security. We were fortunate in having The Simons Foundation agree to be a co-convenor as we set about structuring a dialogue conference around the various issues.

As stated in the Concept Paper we drafted in December 2007:

Extensive and multi-faceted changes are taking place in the Arctic, and the region's significance in the politics of international relations, in regard to security questions – in both the narrow sense and in that of wider human security – and in regard to the human rights of its indigenous peoples, is perhaps greater than ever before. Climate change is bringing about a shrinking of the ice-cap and a reduction in the area of sea-ice, which may allow navigation through Arctic waters and will make for easier access to seabed resources. This, in turn, is already leading to the mobilization of competing claims to sovereignty, and in the absence of a clear and comprehensive legal regime, the countries of the region, like Canada, are seeking to increase their military presence there. A further factor here is that of the recent stepping up of tensions between the United States and Russia, which have historically confronted each other across the Arctic. Environmental change will also have a profound effect on the livelihoods of indigenous peoples, both directly and through its implications for the militarization of the region.

We live in an increasingly interdependent world where the “butterfly effect” is now a well-known phenomenon. The hard evidence of climate change proves that the felling of Amazon forests in Brazil or CO₂ emissions in China all have a cumulative global impact, whether leading to the disappearance of Tuvalu into the Pacific Ocean or the sinking of the Maldives. What happens in the Arctic will consequently impact on the rest of the world. The 17th century English Metaphysical poet John Donne's celebrated line that “No man is an island entire of itself” is truer today than ever before!

The melting of the Arctic Cap will facilitate the mining of resources, especially oil and gas, and will lead to an increase in commercial shipping. The ownership of resources and the sovereignty of areas like the Northwest Passage are already being contested; the applicability of the United Nations Convention on the Law of the Sea has to be more sharply defined, especially in areas where there is overlap. Developing nations that are going to be hit hardest by climate change, where the “Bottom Billion” population lives in extreme poverty, see this potential resource exploitation in the context of globalization and its impact on energy costs, especially as the UN tries to achieve the Millennium Development Goals (MDGs). Some also see the area outside the territory claimed by the littoral states of the Arctic, as part of the global commons and the common heritage of humankind. A global regime could be established over the Arctic, to mitigate the effects of climate change and for the equitable use of its resources in areas outside the territory of the eight circumpolar countries.

From those in the international peace and security sector, deep concerns are being expressed over the fact that two nuclear weapon states – the United States and the Russian Federation, which together own 95 per cent of the nuclear weapons in the world – converge on the Arctic and have competing claims. These claims, together with those of other US allied NATO countries – Canada, Denmark, Iceland and Norway – could, if unresolved, lead to conflict escalating into the threat or use of nuclear weapons.

Consequently in the year 2007-8, which has been designated by the UN as the International Polar Year, it is appropriate that we undertake this task without delay. As one participant of our conference put it, the Arctic has moved from being a boutique issue into a mainstream issue. A dialogue conference that was able to attract a group of outstanding individuals with expertise and experience to discuss the many facets of the subject is only a beginning.

The Arctic is an enormous area around the North Pole, spreading over one-sixth of the earth's landmass with more than 30 million square kilometers - more than three times the size of the whole of Canada. It also encompasses 24 time zones. It includes the Arctic Ocean

(which overlies the North Pole) Greenland (a territory of Denmark), Iceland, parts of Canada, Russia, the United States (Alaska), Norway, Sweden and Finland.

No country owns the North Pole or the region of the Arctic Ocean surrounding it. The Arctic region has a population of about 4 million, including over 30 different indigenous peoples who have lived in the region for more than 10,000 years and who use dozens of languages some of which are fast disappearing. Organisms living in ice, fish and marine mammals, birds and land animals are amongst the forms of life in this unique ecosystem. The natural resources in the Arctic Zone are vast and untapped. The US Geological Survey estimates that 25 per cent of the world's undiscovered energy resources lie in the Arctic Zone, especially in the submerged plateau called the Chukchi Cap (west of the Beaufort Sea and between the Bering Sea and the Chukchi Sea).

At this point we have a unique opportunity to make a choice.

There are numerous definitions of the Arctic region depending on what criteria you use: north of the Arctic Circle (66° 33'N), or the 10°C (50°F) July isotherm (which roughly corresponds to the tree line in most of the Arctic). The Arctic region includes the northern territories of the eight Arctic states – including – Lapland, although some scholars have discovered some vagueness regarding demarcation of boundaries on maps. Accurate and up-to-date maps of the mineral-rich Arctic seabed are especially needed, and the US has undertaken several seafloor mapping exercises.

The vast ice-covered Arctic Ocean, surrounded by treeless, frozen ground has suddenly acquired great importance with the phenomenon of climate change. As a consequence the entire subject of Arctic security, in all its aspects – ecological, military, economic, human rights and social and cultural - has acquired a fresh importance and urgency; history has a strange way of repeating itself.

This region is believed to have formed a land bridge across which the earliest human migration from Eurasia or Asia to the Americas took place. It promises today to be a possible maritime conduit of increased global exchanges in shipping, commerce and other areas as a result of human induced climate change. This has the potential of bringing nations and peoples together for peace and development, or for disputes and conflict. At this point we have a unique opportunity to make a choice. We present papers given at our conference and

a summary of the discussions in the hope that this will contribute to the construction of multilateral co-operative solutions to the problems that Arctic security may pose. We hope this publication will be of value to the governments of the circumpolar countries, to the international community in general, to the indigenous peoples of the region and to the various civil society groups engaged in different aspects of Arctic security.



ICEBERG NEAR BAFFIN ISLAND - PHOTO BY ANSGAR

Welcome Address

Jennifer Allen Simons Ph.D., LL.D.
President
The Simons Foundation

On behalf of The Simons Foundation, I want to welcome you here this morning. We are very pleased to co-convene this conference in partnership with Simon Fraser University's School for International Studies. We are honoured to be hosts to such a distinguished group of Arctic residents, and political, academic and scientific experts on the issue of Arctic Security.

We are exceedingly fortunate to have Jayantha Dhanapala, the inaugural Chair-holder of the Simons Visiting Chair in Dialogue on Human Security and International Law, as Conference Chair. Professor John Harriss, Director of the School for International Studies, and I, invited Mr. Dhanapala to suggest the conference topic. And with his notable perspicacity, global vision, and, I imagine, as a tribute to Canada, his host country, he chose Arctic Security, a subject of immense and immediate importance to Canada, to the other circumpolar countries, and to the world.

The time has come to seek peaceful cooperative solutions for the protection of the inhabitants and common security of the region

There is a heightened urgency of this issue because of a more rapidly-than-expected warming Arctic and consequent melting of the icecap, which adds sovereignty, territorial and security issues to the current host of environmental problems - which include radiation from nuclear fallout, other dangerous pollutants which affect the sea life, the birds, marine mammals and their habitats, and the food chain - destroying the livelihoods, and endangering the health of the indigenous populations so that even fetuses are at risk, and breast milk has become a harmful substance.

It is disappointing to say the least, that governments are focused on economic exploitation of the resources, and focused on control of the newly available waterways and shipping lanes, thus engendering territorial disputes. The circumpolar countries, who would do best to join together with cooperative security measures, are engaging already in territorial disputes, from the grandstanding action of Russia planting a flag under the sea, to the equal but seemingly absurd action of Canada's former Minister of

Defence landing by helicopter on Hans Island, a 2-square kilometer uninhabited rock, jointly and disputatiously claimed by Denmark and Canada.

The time has come to seek peaceful cooperative solutions for the protection of the inhabitants and common security of the region - for example, the Arctic as a zone that is demilitarized and nuclear weapons free. It is time for multilateral negotiations on these issues between the Arctic Rim states for legally binding agreements to begin.

The optimal outcome is that diplomatic solutions such as these are secured and in place, so that the human security challenges are addressed before national political and economic interests are enforced by military means - means detrimental to inhabitants of this region and to the world at large.

The purpose of this conference is to examine and to advance the attainment of such cooperative security solutions, for a constructive demilitarized common security, in order to ameliorate the increasingly negative environmental and territorial disputatious conditions that threaten the livelihoods of the indigenous peoples of the Arctic countries.

My very best wishes for our productive and successful discussions.

Thank you.



FINNISH ICEBREAKER *FENNICA* IN THE BAY OF BOTNIA - PHOTO BY MARCUSROOS

Keynote Address

April 11, 2008

Sergio de Queiroz Duarte
UN High Representative for
Disarmament Affairs

It is very appropriate for me to begin today with a few words of thanks for those who have worked so hard to make this conference possible. I am grateful to Simon Fraser University and its School for International Studies for recognizing the vital importance of the subject of this conference on problems of Arctic security in the 21st Century, and for hosting this event. I also wish to thank Dr. Jennifer Simons and her colleagues at the Simons Foundation for the support that they have generously provided over so many years to advance disarmament and human security goals. I was very pleased to learn that my friend and colleague of many years, Jayantha Dhanapala, had been appointed as the current Simons Visiting Chair in International Law and Human Security. While pleased, I was not surprised, given the fine record of this University, this Foundation, and indeed this country in the field of disarmament.

Perhaps one of the wisest decisions made by the organizers of this event was the decision to frame it as a dialogue, involving an exchange of views among a wide variety of individuals and groups that have particular interests in Arctic security issues. Thus, we have amongst us today representatives of indigenous peoples of the Arctic, academia, the policy research community, international organizations, and the news media.

With respect to the issue of Arctic security, we have an extraordinary blend of the global and the local. Global climate changes are having profound effects upon the natural environment throughout this region, which in turn are gradually producing new environmental impacts around the world, some potentially catastrophic. While global in scope, the costs and consequences of these developments are decidedly local, affecting the daily lives and future prospects of countless human beings, numbering potentially in the billions, not to mention their implications for our other fellow living creatures and plant life throughout this region.

Of course, global climate change is only one of many issues on the international agenda – an agenda that is actually filled with a wide variety of issues that deserve to be treated as high priorities – issues that defy solution by any one state acting alone, and that require cooperative responses. While this is readily apparent with respect to our global environment, it also applies to numerous other threats to human security, including chronic poverty, human rights abuses, the spread

of contagious diseases, illicit trafficking in drugs and weaponry, and persistent dangers from the deadliest weapons on earth, in particular nuclear weapons.

It is completely beyond dispute that the global scope of such security challenges is presenting new challenges to our existing governmental and intergovernmental institutions. But how new are these challenges? Consider for a moment a quote on this subject, which I think you will find interesting:

We have entered a new era, the era of interdependence; and this interdependent world is threatened with chaos because it has not learnt how to adjust its institutions and its traditions of government to the new conditions.

That quote was from Ramsay Muir, and it appears in his book *The Interdependent World and Its Problems*, which was published in 1931.¹ In the same year, the great scholar of the League of Nations, Alfred Zimmermann, wrote, “An inexorable law ... has made us members of the body politic of the world. Interdependence is the rule of modern life.”² Much earlier, in 1916, Leonard Wolf wrote that “The world is so closely knit together now that it is no longer possible for a nation to run amok on one frontier while her neighbour on the other is hardly aware of it. We are so linked to our neighbours by the gold and silver wires of commerce – not to speak of telegraph wires and steel rails – that ... every war threatens to become a world war.”³

Yet despite this very early awareness of international interdependence, the need for cooperative and multilateral approaches to security persists. Particularly lacking are the organizational mechanisms needed to make the best of this interdependence, while avoiding its worst possible consequences. I do not believe we will find the solution to these challenges in a full-fledged “world government.” I do believe, however, that several existing international legal instruments offer some attractive building blocks that can apply directly to enhancing peace and security in the Arctic region. So I would now like to outline briefly some basic elements of a constructive, multilateral approach to address this challenge. My approach relies on the common sense principle of building upon what is already agreed.

The starting point, of course, is the UN Charter. Any effective security regime in this region must embrace the fundamental norms of the Charter, in particular its prohibition on the threat or use of force, its requirement for the peaceful settlement of disputes, its affirmation of the sovereign equality of states, and its respect for the principle of non-interference in affairs within the domestic jurisdiction of states. Article 52 of the Char-

ter specifically recognizes the legitimacy of regional arrangements to address international peace and security issues, consistent with these fundamental norms. I must note here that Article VII of the Nuclear Non-Proliferation Treaty – to which all Arctic states are party – also affirms the right of “any group of States” to conclude regional treaties “to assure the total absence of nuclear weapons from their respective territories.”

The next step is to identify some areas where armed conflicts could potentially occur in the region, as well as circumstances that could lead to the worst nightmare of all, the use of a nuclear weapon, the deadliest and most indiscriminate of all weapons of mass destruction.

Here I think we need to examine some precedents: first, the Antarctic Treaty of 1959, which provided that the world’s southernmost continent would “be used exclusively for peaceful purposes.” That seems to me to qualify as a fundamental norm for any security regime that may come into existence in the Arctic region. Another interesting feature of that treaty might also be relevant in any future Arctic security regime. Many countries – including my own Brazil – have civilian bases in Antarctica. Under the Antarctic Treaty, each Contracting Party has the right to send observers to every base of any country in that region. This is a very powerful confidence-building measure for ensuring full compliance.

The second precedent would be the Seabed Treaty of 1971, which requires its States Parties – including all eight states in the Arctic region that are party to this treaty – not to place on the seabed and the ocean floor and in the subsoil thereof – nuclear weapons or any other types of weapons of mass destruction, as well as structures, launching installations or any other facilities specifically designed for storing, testing or using such weapons.

I would like to note here that this treaty also states that it is intended as a step to advance the goal of “general and complete disarmament under strict and effective international control. In short, it seeks to advance the longer-term goals of eliminating weapons of mass destruction, as well as reducing or limiting conventional arms. This last point is especially important, since the melting of arctic ice may well open the way for the increased presence in the region of military naval vessels from several countries. We are already witnessing increased interest in the economic possibilities opened up by the changing environment in the region.

The third precedent consists of a family of treaties that have established regional nuclear-weapon free zones, specifically in Latin America and the Caribbean, the South Pacific, Southeast Asia, Africa, and Central Asia. In 1999, the United Nations Disarma-

ment Commission (UNDC) adopted by consensus a set of guidelines for the establishment of such zones, and I believe that many of these criteria are also worthy goals to pursue in the Arctic region. The guidelines above are all flexible, given that they recognize the “diversity of circumstances” of each region – and we all know that the Arctic offers plenty of these.

Under these guidelines, such zones must be established only on the basis of arrangements freely arrived at among the states of the region, which guarantees every concerned state, whose primary purpose is to strengthen regional peace and security, the right to participate in developing the zone. The fundamental prohibition on the stationing of nuclear weapons anywhere in the region, of course, is a key *raison d’être* for establishing any such zone, which would also exclude the testing of any nuclear weapons in the region. On this last point, I note that all states in the region have ratified the Comprehensive Nuclear-Test-Ban Treaty, except the United States, which is maintaining a moratorium on further tests.

The UNDC guidelines also provide that the nuclear-weapon-states would give assurances against the threat or use of nuclear weapons against the States Parties. In addition, the guidelines allow for the zone to include environmental standards to prevent pollution from radioactive wastes and other radioactive

We have entered a new era, the era of interdependence; This interdependent world is threatened with chaos because it has not learnt how to adjust its institutions and its traditions of government to the new conditions

substances, including standards for dealing with the transportation of such materials.

Finally, these guidelines not only endorse, but call for “vigorous efforts” to promote cooperation between all states that are parties to such zones worldwide. This is an intriguing criterion, given that two of the states in the Arctic region have nuclear weapons and several others belong to NATO, a nuclear alliance. Can a new regional Nuclear Weapon Free Zone (NFWZ) encompass only parts of countries? If this can be agreed upon, it could have implications well outside the region.

Beyond these multilateral or plurilateral undertakings, it may well be worthwhile to examine certain bilateral agreements between the United States and the Russian Federation (and Soviet Union) to see if they can be adapted to address broader security concerns in the Arctic region. One candidate would be the Incidents at Sea Agreement of 1972, which outlines a series of confidence-building measures intended to reduce the possibility of armed conflict by accident.

Clearly, the solution to new and emerging security challenges in the Arctic will not be found in any single initiative. The problems are too complex for a quick fix and no single legal instrument will likely be able to resolve all the legitimate security concerns of each country. I see instead, the gradual emergence of an eclectic Arctic security regime, consisting of various elements derived or adapted from other multilateral arrangements, and applied to the specific conditions of the Arctic region.

The difficult is what takes a little while; the impossible is what takes a little longer.

The regime could, and I believe should, incorporate the basic goals of a NFWZ. After all, the Seabed Treaty has already established what might be called a one-dimensional NFWZ on the Arctic seabed and its subsoil. A prohibition on the stationing of nuclear weapons anywhere else in the region would seem a logical next step in the evolution of this regime.

An Arctic security regime should also address some additional issues. It should:

- Provide for confidence-building measures to prevent the occurrence of armed conflicts involving conventional forces
- Include provisions to meet basic human security needs of communities throughout the region
- Provide a common mechanism for the peaceful resolution of disputes. It should embody commitments of cooperation and mutual assistance in the field of disaster relief
- Promote cooperation in the area of scientific research and the development of technology to protect the environment and to improve the living conditions of all who live in the region

- Provide a clearinghouse for the exchange of information about security and environmental conditions in the region
- Provide for a mechanism to ensure the participation and active involvement of local communities and groups in the process of promoting cooperation in the region

I believe that “common cooperative security” is an apt term to summarize what all these various measures seek to advance.

Sometimes when the sheer complexity of international responsibilities becomes overwhelming and their burdens too difficult to manage, it is worth recalling the efforts of those before us who have faced such obstacles, overcome them, and left a better world behind. One such individual is the great Norwegian Arctic explorer, Fridtjof Nansen, who in 1895 extended human knowledge of the Arctic to higher latitudes than ever before. He went on to win a Nobel Peace Prize in 1922 for his work in caring for refugees after World War I. Here is what Philip Noel-Baker said about Nansen in his own Nobel Peace Lecture of 1959:

Nansen was the first to say what others have repeated, that “the difficult is what takes a little while; the impossible is what takes a little longer.” If politics is the art of the possible, statesmanship is the art, in Nansen’s sense, of the impossible; and it is statesmanship that our perplexed and tortured humanity requires today.

So I will conclude my remarks today by invoking the spirit that guided the work of Fridtjof Nansen, Philip Noel-Baker and countless other unnamed individuals who have devoted their lives to the improvement of the human condition and the service of international peace and security. As you consider the many problems of Arctic security in the 21st century, in all their complexity, I urge you to consider solutions that embody this profound commitment to statesmanship, in service of the common interest.

Please accept my very best wishes for a successful conference.

Endnotes

- 1 The Interdependent World and Its Problems (1931), p. vii.
- 2 The Study of International Relations (1931), p. 14-15.
- 3 International Government (1916), p. 128.

SESSION I: THE ARCTIC ENVIRONMENT AND THE IMPACT OF CLIMATE CHANGE



SEA ICE MELT PONDS BAFFIN BAY - COURTESY OF NASA

Arctic Climate: Present and Future Perspective

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Global warming is enhanced in the Arctic regions. The air temperature has increased to double that of the global average over the last 100 years, the ice cover is decreasing at a rate of 3–5% per decade while the thicker multi-year ice is decreasing at a rate of 7–10% per decade, the river discharge from Russia is increasing, the tundra-permafrost is thawing and the snow cover on land is decreasing. Furthermore, in the past few years, the Greenland ice sheet has lost mass along its edges – slightly more than the accumulation increase in the interior. The Greenland ice sheet is a “wild card” in the global climate system, with significant impact on the global sea level rise and a potentially strong impact on the thermohaline circulation (Gulf Stream decrease). However, it should be pointed out that strong natural variability at the interannual and decadal time scale takes place in the Arctic region which also causes strong regional variability.

The prediction for the Arctic region is a strong increase in the air temperature and a significant decrease in the ice cover. A blue Arctic Ocean is predicted during the summer time at the mid or end of this century, or perhaps even earlier. However, many recent Intergovernmental Panel on Climate Change-coupled climate models also indicate a strong wide spread in the result. Recent studies also indicate that 90% of the annual decrease in ice extent can be “explained” by the increase of CO₂ in the atmosphere, and that the ice extent is reduced faster than the IPCC models predict.

If the predictions turn out to be valid, then global warming will have a strong impact on the ecosystem and fisheries, living conditions for humans and animals e.g. and polar bears, offshore and onshore oil and gas exploration and production, ship transportation along the Northern Sea Route and in the North West Passage, society, economy and energy supply (20% of the remaining oil and gas reserves is estimated to be in the Arctic region). However, it should be pointed out that the IPCC models have not taken into account the potential impact of the increased melting and discharge of fresh water from the Greenland ice sheet, giving increased uncertainty to the predictions. Another important issue that has not been taken into account is the potential of increasing CO₂ uptake by a “Blue Arctic Ocean”.

Global warming in the Arctic region can have both positive and negative effects. It is easy to understand

that a retreating ice cover will make off-shore oil and gas production easier in the future. On the other hand, the thawing of the tundra and permafrost will cause problems for the onshore gas and oil industry. Furthermore, the thawing permafrost will cause a lot of infrastructure problems for the population living in this region. Another big question is what will happen with the huge methane reservoirs which at present are frozen in the permafrost, also located offshore.

1. Background

During the late 1970s, increased international interest started to appear in studies of the Marginal Ice Zone (MIZ) of the Nordic Seas. Several large international experiments took place such as the Norwegian Remote Sensing experiment in 1979 (NORSEX 79), the mega science experiment Marginal Ice Zone Experiment in 1983-1984-1987 (MIZEX 83, MIZEX 84, MIZEX 87), and the Seasonal Ice Zone Experiment in 1989 (SIZEX 1989) [see Johannessen et al. (1992) for a review of these experiments].

The overall objectives of these experiments were to improve our understanding of the air-ice-ocean processes in the MIZ and to develop and validate new and advanced remote sensing techniques. During this decade, there has also been a development from basic research towards the application and operational use of remote sensing techniques in sea ice monitoring and forecasting in the Seasonal Ice Zone (SIZ). The concept and the strategy of all these experiments was to collect data from a three-level observational system – satellites, aircraft, and in-situ observations. During these experiments, data was collected from ice-strengthened vessels with helicopters, from operating icebreakers inside the ice pack, from oceanographic research vessels operating in the open ocean adjacent to the ice edge, from drifting buoys tracked by the Argos system and bottom-moored buoys, and from aircraft and satellites. Instruments on these varied platforms acquired a diverse suite of ice, ocean, and atmospheric data.

From these experiments we also started to understand the meso-scale processes in the Seasonal Ice Zone. For example, we learned that meso-scale ice-ocean eddies along the ice edge were very efficient in melting it. Furthermore, that ice-edge upwelling took place along the ice perimeter, is important for biological production during summer time, and that both these processes are important for climate.

In the beginning of the 1990s, when global warming started to be a major topic, the interest for studying the Arctic climate increased. A consensus from coupled atmosphere-ice-ocean modelling studies of increasing greenhouse-gas (GHGs) scenarios is that anthropo-

genic global warming will be enhanced in the northern high latitudes, due to complex feedback mechanisms in the atmosphere-ocean-ice system. The predicted warming in the Arctic over the next 50 years is ~3-4°C, or more than twice the global average. This suggests that the Arctic may be where the most rapid and dramatic changes (e.g., a shrinking sea ice cover) may take place during the 21st century. Reviews of fragmentary observational evidence taken together provide a reasonably coherent portrait of Arctic and subarctic change. It indicates that the last 2-3 decades have experienced unusual warming over northern Eurasia and North America, reduced Arctic sea ice, marked changes in Arctic Ocean hydrography, reduced glaciers and snow cover, increased runoff into the Arctic, increased tree growth in northern Eurasia, reduced tundra areas and thawing permafrost (Johannessen et al., 2004; Johannessen et al., 2005; Bobylev et al., 2003; Holland et al., 2006; Stroeve et al., 2008, Johannessen, 2008).

2. Recent transformation of the Arctic sea cover

Quantitative observational evidence for changes in the sea ice cover may be obtained from satellite-borne sensors measuring microwave (millimeter-to-meter wavelength) radiation. Microwave-derived sea ice time series are now among the longest continuous satellite-derived geophysical records, extending over three decades (<http://nsidc.org>). The multi-frequency brightness temperature data are used to calculate total ice concentration (the per cent of ice-covered ocean) from which total ice area (the area of ice-covered ocean) and total ice extent (the area within the ice-ocean margin) are derived. In the mid 1990s, Johannessen and colleagues published their analyses of satellite microwave data in *Nature* (Johannessen et al., 1995) and *Geophysical Research Letter* (Bjørge et al., 1997). These studies found a reduction of about 3% per decade in ice extent in the Arctic since 1978.

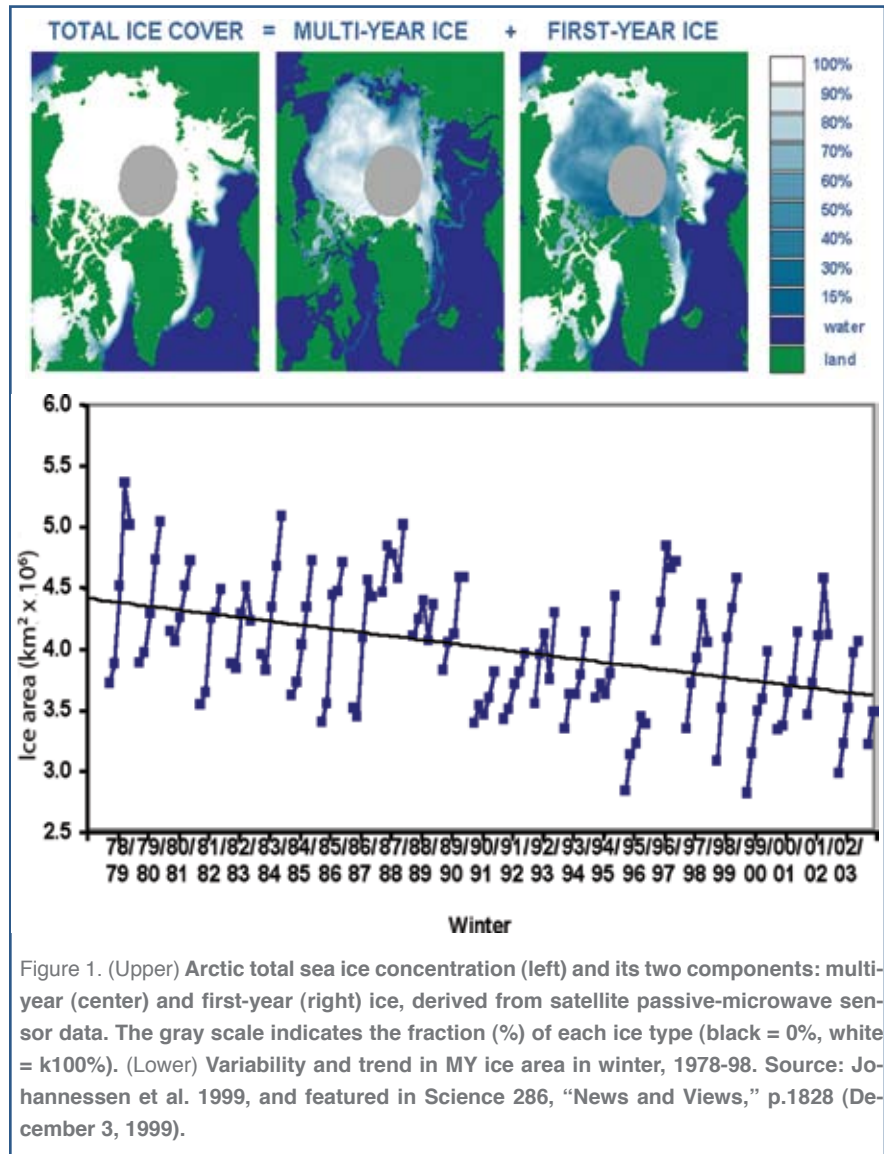


Figure 1. (Upper) Arctic total sea ice concentration (left) and its two components: multi-year (center) and first-year (right) ice, derived from satellite passive-microwave sensor data. The gray scale indicates the fraction (%) of each ice type (black = 0%, white = 100%). (Lower) Variability and trend in MY ice area in winter, 1978-98. Source: Johannessen et al. 1999, and featured in *Science* 286, "News and Views," p.1828 (December 3, 1999).

The observed decreases are due largely to reduced summer ice extent in the Eurasian Arctic in the 1990s, with record low arctic ice minima observed in 1990, 1993, and 1995, linked to regional atmospheric circulation anomalies. A reduced summer ice extent implies a consequential transformation of the winter ice cover toward thinner seasonal ice. There have been fragmentary indications of unusual conditions in recent years, such as reduced ice concentration in the Siberian sector of the perennial ice pack in the 1990s and reduced ice thickness in parts of the Arctic since the 1970s. This is based on submarine sonar data, satellite altimeter-retrieved ice thickness as well as sea ice vibration measurement for ice thickness estimates (Rothrock et al., 1999, and Johannessen et al., 2004).

However, it remained unknown whether the nature of the perennial ice pack as a whole has changed. Per-

ennial multiyear (MY) ice (ice that has survived the summer melt) is about three times thicker than seasonal or first-year (FY) ice (~1 to 2 m), so that changes in ice type distribution could both reflect and effect climate change. Because MY ice, FY ice, and open water have different radiative properties, algorithms applied to multichannel microwave data can separate each of these components, at least in winter when the signatures are relatively stable (Fig. 1, upper). The possibility of monitoring interannual variations in MY ice area with satellite microwave data had been explored previously, but remained under-realized.

For the first time, a spatially integrated time series of MY ice areas in winter was derived from SMMR and SSM/I data from 1978 to 1998, revealing the ice cover's changing composition (Fig. 1, lower). Johannessen et al. (1999) found a relatively large (~7% per decade) reduction in the MYI area 1978-98, compared with ~2% per decade in the total ice area in winter. The negative trend in MYI area from our analysis is often cited as evidence of a substantial change in the nature of the sea-ice cover, more than merely a peripheral effect.

The balance of evidence thus indicates an ice cover in transition, which, if continued, could lead to a markedly different ice-ocean-atmosphere regime in the Arctic. However, 20 years are inadequate to establish that this is a long-term trend rather than reflecting decadal-scale atmosphere-ocean variability such as the North Atlantic Oscillation (NAO). The NAO is known to be coupled to regional sea ice fluctuations, and here we found its winter index to be moderately lag-correlated with the following summer minimum ice area and hence the following winter MY ice area with $r \sim 0,5$.

The sea ice record has since been updated with record-low summer ice coverage in September 2007 (Parkinson and Cavalieri, 2008, Comiso et al., 2008, Stroeve et al., 2008). The winter and summer spatial trends (linear regressions) in sea-ice concentration from 1978-2002 are indicated in the Fig. 2. During this period, the decreases in winter have been most pronounced (as large as ~50%) in the Barents and Greenland seas, whereas the summer decreases have been greater than 50% in some areas of the Beaufort and Chukchi seas, and as large as ~30-50% in the Siberian marginal seas. These summer patterns are in agreement with an independent analysis of ice-cover minima from 1978-98. The decreases in recent decades, which are also partially due to circulation-driven ice export through the Fram Strait between Greenland and Svalbard, have coincided with a positive trend in the NAO, with unusually high index values in the late 1980s and 1990s.

3. 20th century Arctic climate and surface air temperature: Observations and modelling

The above-mentioned changes apparent in the Arctic climate system in recent years require evaluation in a century-scale perspective in order to assess the Arctic's response to increasing anthropogenic GHG forcing. Towards this end, we have analyzed a new set of century- and multidecadal-scale observational data of surface air temperature (SAT) and sea ice, used in combination with the Max-Planck Institute for Meteorology (MPI) ECHAM4 and other coupled global atmosphere-ice-ocean model simulations in order to better determine and understand arctic climate variability. Statistical analyses of global SAT datasets have indicated substantial fluctuations in the extra-tropical Northern Hemisphere on decadal to multi-decadal time scales. In the high latitudes, differences in spatial-temporal coverage have led to some discrepancies concerning temperature variability trends in the last century. The global gridded SAT dataset, used most extensively for studies of climate variability, has major gaps in the northern high latitudes, in particular over the ice-covered Arctic Ocean and some surrounding land

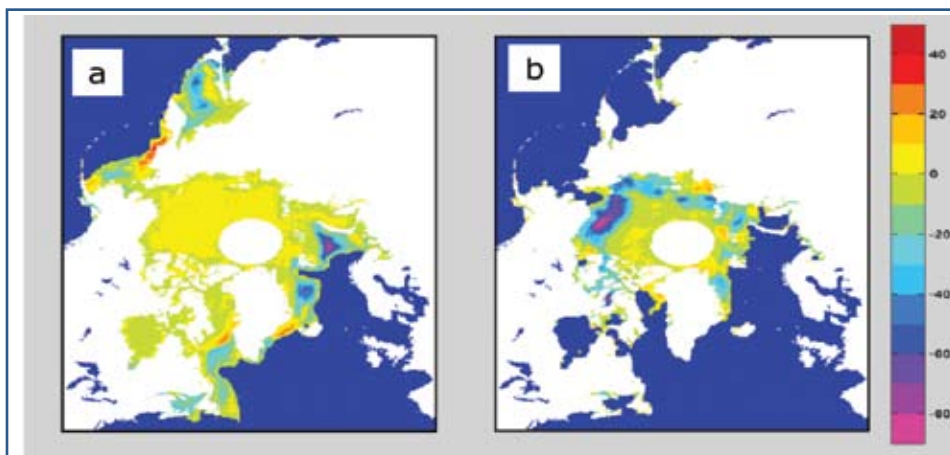


Figure 2. Satellite-retrieved sea ice concentration (per cent ice area per image pixel) in winter (March) and summer (September) for the Northern Hemisphere, 1978-2002: Linear trends (% change from 1978-2002) for (a) winter and (b) summer. From Johannessen et al. (2004). Image not in this edit.

areas. Here, we analyzed for the first time a unique, century-long SAT dataset focused on the high latitudes of the Northern Hemisphere. The dataset is provided through the Arctic and Antarctic Research Institute (AARI), St. Petersburg, Russia. The input data are daily temperature from 1,486 meteorological stations in the Northern Hemisphere, including land- and drifting-stations from the Arctic. A gridded dataset (5° lat. × 10° long.) based on these data has been developed from several sources and has the advantage of improved coverage in the Arctic and extending over the last century (Johannessen et al., 2004). This data set has recently been compared with other data sets and a new SAT data set has been created, Kuzmina et al. 2008).

Fig. 3a shows the time evolution of the zonally averaged anomalies in annual mean SAT from 30-90°N.

Two characteristic warming events stand out, the first from the 1920s to about 1940, and the second starting about 1980 and still ongoing. Here, we show that the early 20th-century warming was largely confined to north of 60°N, whereas the latter warming encompasses the whole Earth but is nonetheless significantly enhanced in the Arctic (Fig. 3a). The early 20th-century warming trend in the Arctic was nearly as large as the warming trend for the last 20 years, such that some researchers regard them to be part-and-parcel of the same natural low-frequency oscillation. However, our spatial comparison of these periods revealed key differences in their patterns. The warming trend for the last 20 years is more widespread and has a markedly different pattern from the earlier periods in both winter and summer. Both the 1920–39 and 1980–99 warming trends were most pronounced during winter for the high Arctic. In addition, in the latter period, there was pronounced warming in the Eurasian mid-latitudes, especially in summer.

A recent modelling study has suggested that the

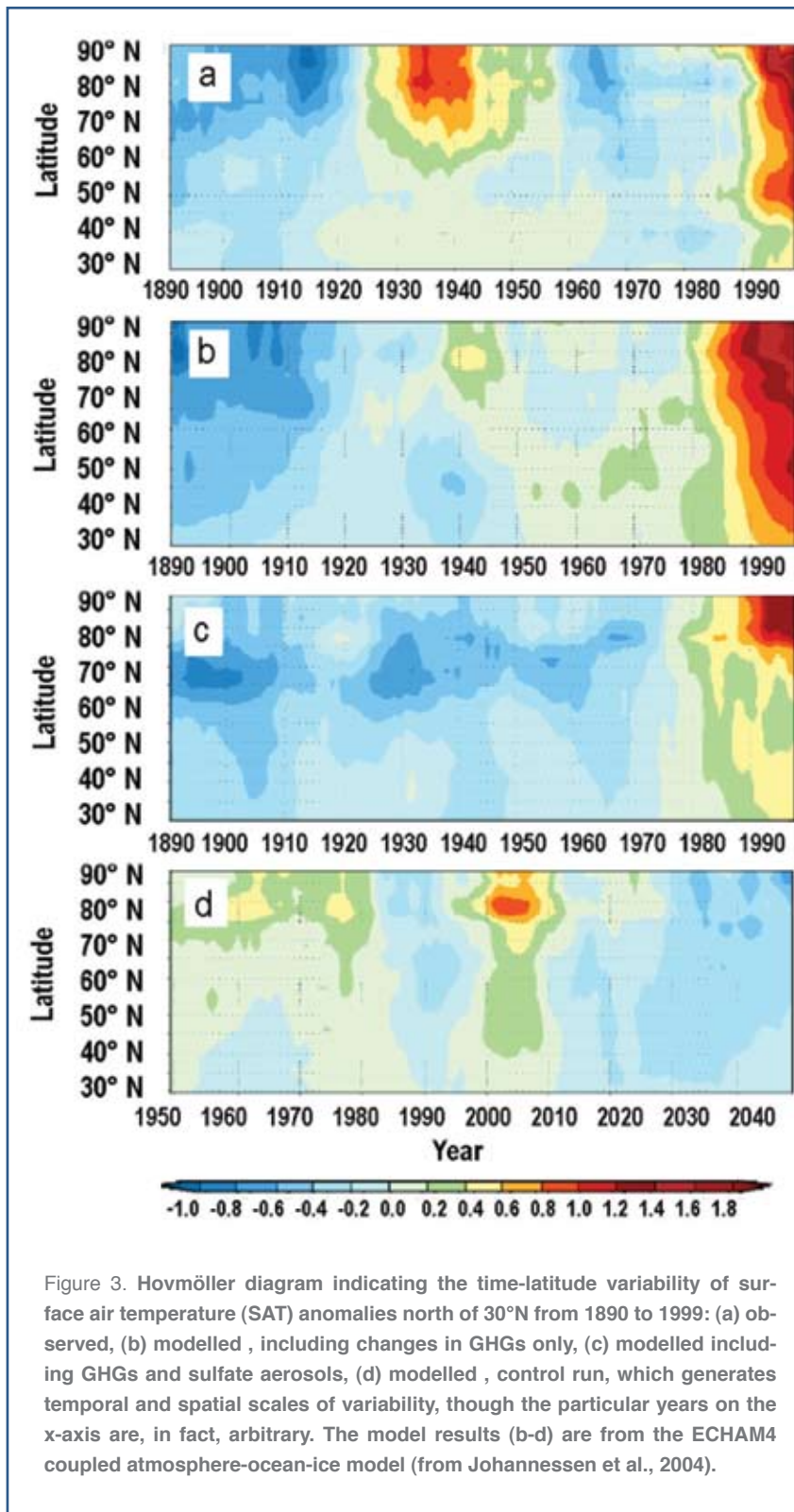


Figure 3. Hovmöller diagram indicating the time-latitude variability of surface air temperature (SAT) anomalies north of 30°N from 1890 to 1999: (a) observed, (b) modelled, including changes in GHGs only, (c) modelled including GHGs and sulfate aerosols, (d) modelled, control run, which generates temporal and spatial scales of variability, though the particular years on the x-axis are, in fact, arbitrary. The model results (b-d) are from the ECHAM4 coupled atmosphere-ocean-ice model (from Johannessen et al., 2004).

1920s–30s warming anomaly was due to natural processes. Here, a similar high-latitude anomaly, though less extreme and of a somewhat shorter duration, was found in a 300-year control run (without increas-

ing anthropogenic forcing) with the ECHAM4 model; 100 years are shown in Fig. 3d. This anomaly occurred after 150 years of integration and lasted for some 15 years. This simulation, without increasing anthropogenic forcing, is able to produce an anomaly similar to the observed high-latitude warming in the 1920s-30s. Therefore, we strongly support the contention that this high-latitude warming event represents primarily natural variability within the climate system (Johannessen et al. 2004).

In contrast, no comprehensive numerical-model integrations have produced the present global warming anomaly (Fig. 3a) without including observed anthropogenic forcing. Figure 3b shows the ECHAM4 model simulation with anthropogenic GHG forcing. The patterns compare well with the last two decades of observed warming, although the modeled warming occurs slightly earlier and also encompasses lower latitudes than observed (Fig. 3a). The patterns, from a simulation including GHGs and sulfate aerosols (Fig. 3c), show that although the recent mid-latitude warming is underestimated, the high-latitude enhancement is in agreement with the observations and other modelling results. Therefore, anthropogenic forcing is the dominant cause of the recent pronounced warming in the Arctic.

The huge warming of the Arctic, mentioned previously, which started in the early 1920s and lasted for almost two decades, was thus one of the most spectacular climate events of the 20th century. During peak period (1930-40), the annually averaged temperature

anomaly for the area 60°N-90°N amounted to some 1.7°C (Fig. 3a and Fig. 4, left). Whether this event is an example of an internal climate mode or externally forced, such as by enhanced solar effects, is presently under debate. What then are the possible mechanisms by which forcing could bring about high-latitude warming? Firstly, the large-scale spatial pattern of forcing and the pattern of response to forcing are practically uncorrelated, which stresses the key role of advective atmosphere-ocean processes in bringing about regional climate change.

As mentioned earlier we suggest that natural variability is the most likely cause, with a reduced sea ice cover being the main cause of the warming. A clear linkage between sea ice extent and SAT was demonstrated by a set of four simulations with the atmospheric ECHAM model forced with observed sea surface temperature (SST) and sea ice concentrations. An analysis of the spatial characteristics of the observed early century SAT anomaly revealed that it was associated with similar sea ice variations. We further investigated the variability of Arctic surface temperature and sea ice cover by analyzing data from a coupled ocean-atmosphere model. By analyzing similar climate anomalies in the model as occurred in the early 20th century, it was found that the temperature increase in the Arctic was caused by enhanced wind driven oceanic inflow into the Barents Sea with an associated sea ice retreat. The magnitude of the inflow is linked to the strength of westerlies into the Barents Sea.

We proposed that a positive feedback sustained the

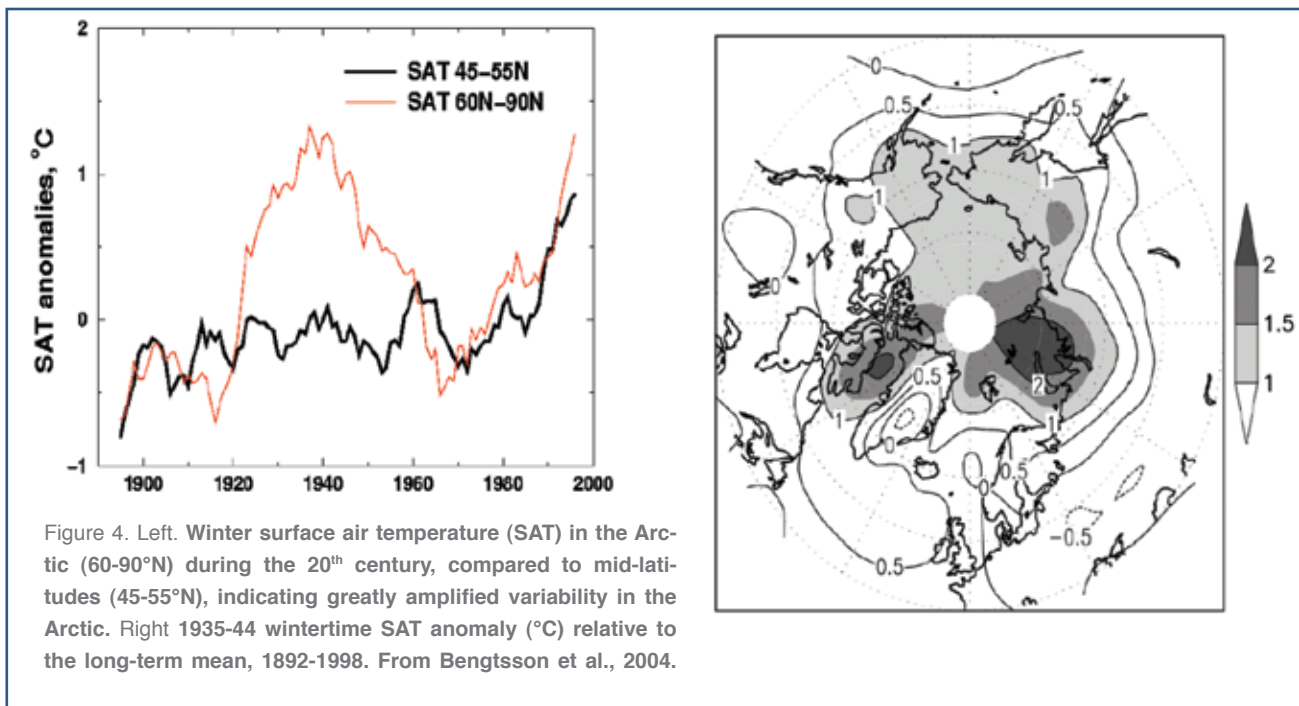
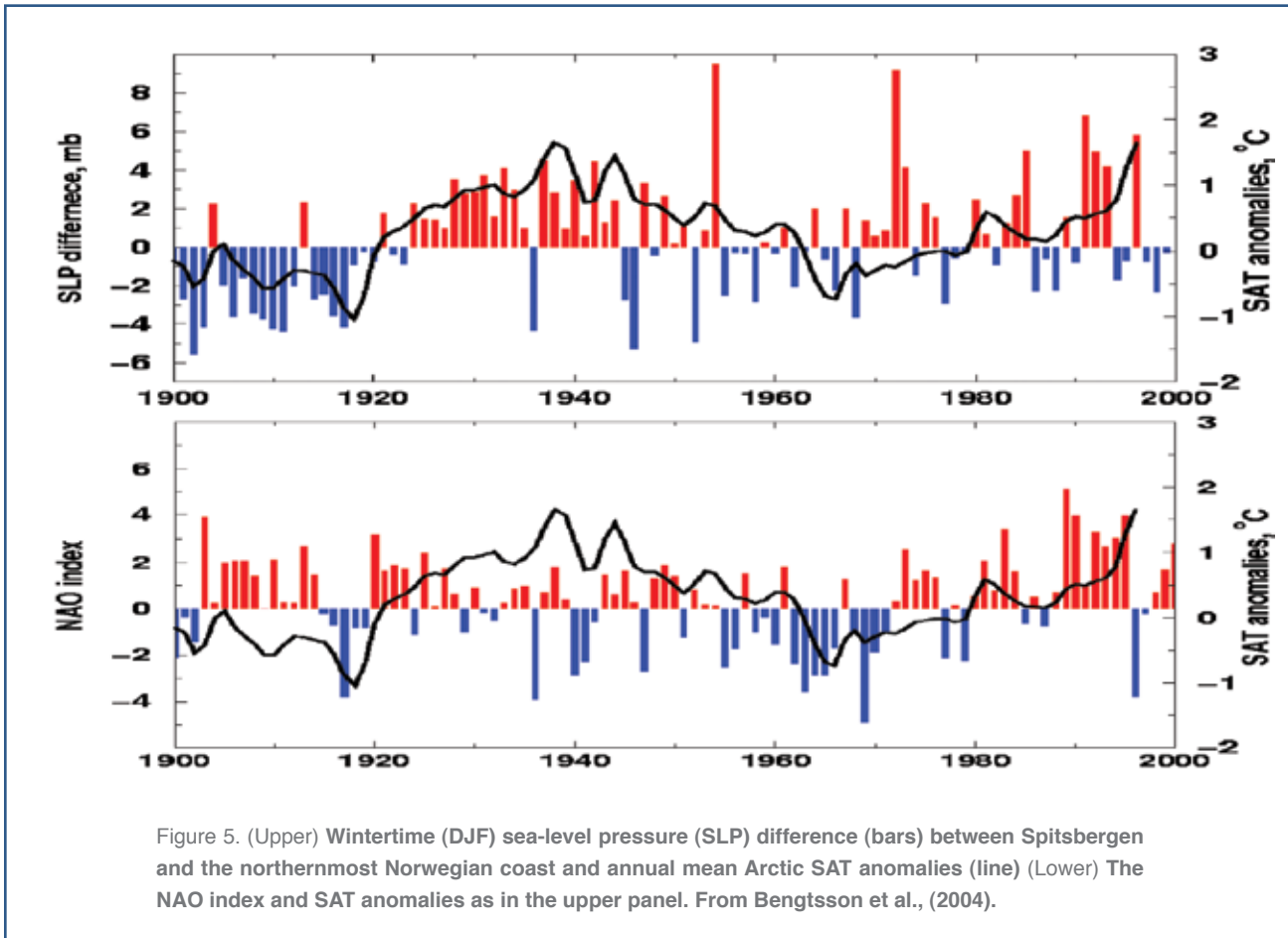


Figure 4. Left. Winter surface air temperature (SAT) in the Arctic (60-90°N) during the 20th century, compared to mid-latitudes (45-55°N), indicating greatly amplified variability in the Arctic. Right 1935-44 wintertime SAT anomaly (°C) relative to the long-term mean, 1892-1998. From Bengtsson et al., 2004.



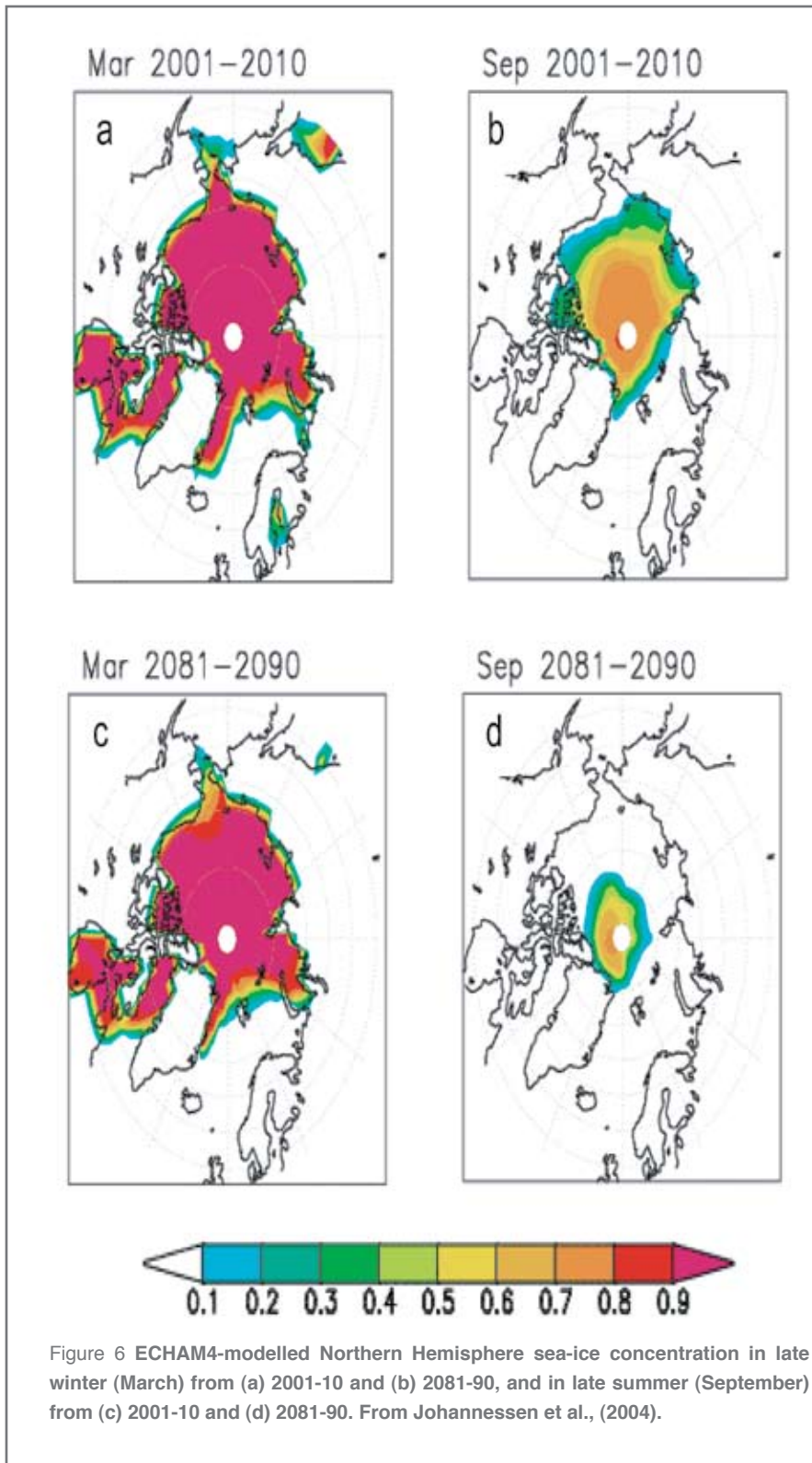
enhanced westerly winds by a cyclonic atmospheric circulation in the Barents Sea region, which was created by a strong surface heat flux over the ice-free areas. Observational data suggest a similar series of events during the early 20th century Arctic warming, including increasing westerly winds between Spitsbergen (Fig. 5, upper graph) and the northernmost Norwegian coast in 1920s-30, as well as reduced sea ice and enhanced cyclonic circulation over the Barents Sea. It is interesting to note that the increasing high latitude westerly flow at this time was unrelated to the NAO, which at the same time was weakening as shown by Bengtsson *et al* (2004) in Fig. 5, lower graph.

4. Nordic Seas: 20th century observational record

Complementary to the Arctic sea ice and atmospheric changes studied in the above-mentioned analyses are changes in physical oceanography on similar time scales (Alekseev et al., 2001 and 2003 in Borylev *et al*, 2003). A similar early 20th century warming was seen in the Atlantic Water (AW) temperature in the Arctic Ocean. Furthermore, oceanographic data covering the period 1950–98 were compiled and used

to determine interannual to decadal variations in the convective intensity and water mass structure in the Greenland Sea and adjacent areas. Extremely cold winters throughout 1965–70 assisted intensification of the water vertical exchange in the Greenland and Norwegian Seas. As a result, Greenland Sea Deep Water (GSDW) production was extremely high in the central Greenland Sea, while in the southern Norwegian Sea, warm and saline water spread downward.

Alekseev et al. (2001 and 2003) argue that the recent rapid warming in the Greenland Sea gyre interior from 1980 originates from an increase in the Atlantic Water (AW) temperature, due to advection of warm waters in to the region. The negative trends in water and salinity in the upper 300m of the AW in the Norwegian Sea prevailed during 1950-80, whereas from 1980, the water temperature indicated warming of that layer. Long observational series obtained from Ocean Weather Station M confirmed the existence of layers with advection-driven high oxygen concentrations in intermediate and deep layers. The depth of oxygen maxima and values of oceanographic parameters at this level are regarded as indicators of the convection intensity. A simultaneous rise in the NAO index and GSDW tem-



recirculation increase within the Nordic Seas. Generation of positive anomalies in water temperature upstream of the AW flow in the Nordic Seas reflects an increased role of atmospheric interactions, possibly reinforced by polar amplification of GHG-induced warming.

5. The 21st century Arctic and European climate

The NAO, the major mode of atmospheric variability in the Northern Hemisphere, particularly in winter, is exerting a strong control on the extra-tropical climate, for example., modulating the westerly jet stream and temperature from eastern North America into Eurasia. The NAO has exhibited a positive trend since the 1960s, and it has been speculated that this may be linked to global warming. However, the observed variations in the NAO could also be caused by natural variations in the climate system. It has been difficult to uniquely state which of the two alternatives are most likely, as distinguishing natural versus anthropogenic variability in the NAO based on observed surface-level pressure (SLP) alone is challenging. There are also uncertainties in the theoretical response of NAO/AO (Arctic Oscillation) to enhanced greenhouse warming and our ability to model it realistically using numerical models.

Here, the results of 12 coupled climate models participating in the Coupled Model Intercomparison Project (CMIP2) are compared together with observational data in order to investigate: 1) How the current generation of climate models reproduces the major features of the winter NAO, and 2) How the NAO intensity and variability may change in response to increasing atmospheric CO₂ concentra-

perature indicates a link between the atmosphere and the thermohaline circulation (THC). Weakening in the water exchange between the Nordic Seas and the North Atlantic could be the reason for the Polar Water

temperature indicates a link between the atmosphere and the thermohaline circulation (THC). Weakening in the water exchange between the Nordic Seas and the North Atlantic could be the reason for the Polar Water

tions. Long-term changes in the intensity and spatial position of the NAO nodes (Icelandic Low and Azores High) are investigated and different definitions of the NAO index and the AO are considered. We found that the current generation of climate models reproduces, on average, the main surface level pressure (SLP) features of the observed winter NAO. The observed temporal trend in the NAO in recent decades lies beyond the natural variability found in the model control runs. For the majority of the models, there is a significant increase in the NAO trend in the forced runs relative to the control runs, suggesting that the NAO may intensify with further increases in greenhouse-gas concentrations (Kuzmina et al., 2005).

The underlying causes of forced variability in the North Atlantic region are unclear. There are at least two candidate mechanisms to explain the recent trend of the NAO: An extra-tropical response to changes in tropical sea-surface temperature (SST) and other involving stratospheric changes. In either case, the processes linking the NAO to GHG forcing need further elucidation.

6. Arctic sea ice and marine environment in the 21st century

The variability of annual sea-ice extent in the Arctic has been modeled and compared to observations in earlier analyses, which predicted a reduction of ~15% in the Northern Hemisphere mean ice extent to 2050. However, potentially large and important spatial and seasonal aspects were not considered. Here, for the first time, both the spatial and seasonal variability of the ice cover and its modelled response to anthropogenic forcing have been analyzed to 2100, using ECHAM4 and HadCM3 model predictions including different IPCC emissions scenarios (Johannessen et al., 2004). The observed versus ECHAM4-modelled trends in Northern Hemisphere winter and summer sea-ice extent in the 20th century are similar. Our ECHAM4-model run, using an IPCC IS92 emission scenario similar to IPCC Special Report on Emissions Scenarios (SRES) scenario B2, predicts the decreases to continue such that the summer ice cover may be reduced by ~80% at the end of the 21st century. This is much greater than the winter or annual means modelled previously predict.

The spatial distributions of the ECHAM4-modelled sea-ice cover for the present decade (2001–10) and towards the end of the century (2081–90) are indicated in Figure 6. In order to test the robustness of our ECHAM4 estimates, we used a different coupled atmosphere-ocean model, the UK HadCM3. Furthermore, we used two different SRES scenarios, A2 and

B2, which are “medium-high” and “medium-low” scenarios, respectively.

The ECHAM4 and HadCM3 results support each other, both predicting moderate reductions in winter and drastic reduction in the summer ice extent. The spatial distributions of the ECHAM4 modelled summer ice cover in late century (Figure 6 d) indicate essentially ice-free arctic marginal seas except north of Greenland and the Canadian Arctic Archipelago. Recent studies that have supported our conclusions (e.g. IPCC, 2007; Stroeve et al., 2007 and 2008) also indicating that the summer sea ice may even disappear much earlier. Johannessen (2008) has recently shown, based on statistical analysis, that 90% of the decreasing annual ice extent can be explained by increasing CO₂ in the atmosphere and that the IPCC models underestimate the annual sea ice extent by several millions km² by 2050.

There are several potential consequences of a diminished Arctic sea ice cover that may be hypothesized:

1. Reductions in albedo and increased open water would have significant effects on energy balances and atmospheric and oceanic circulation in the high latitudes
2. Exposure of vast areas of the Arctic Ocean with cold open water, which has a high capacity for CO₂ absorption, could become a new and important sink of atmospheric CO₂
3. Changes in the pathways and spreading of melt water and in the stratification in the Nordic Seas, and the effects of reduced deepwater formation in the Nordic Seas on the global THC could greatly alter the climate of the Arctic and adjacent regions including Europe
4. Broad changes in the marine ecosystem. For example, changes in plankton in the North Atlantic due to less ice and greater inflow of melt water could have a negative impact on Arctic and subarctic marine biodiversity. On the positive side, there would be a larger area for potential fisheries, as well as increased offshore activities and marine transportation, including the use of Northern Sea Route north of Siberia. The Northern Sea Route (or “Northeast Passage”) may finally realize its potential in the 21st cen-

ture particularly if the sea ice conditions decrease to the extent predicted by the models (Johannessen et al.,2007).

7. Future challenges

There is a strong need to improve our knowledge base and observation–prediction system for the following important societal issues:

1. Socio-economic, human and political impacts of climate change. There is a need to assess the impact of climate change on a range of issues such as environmental risk, industrial development, transportation and living conditions.
2. Ecosystems and fisheries: improved understanding and preservation of the Arctic ecosystem is of high priority. Climate change can impact fisheries in the Nordic and Barents Seas, which are among the most important in the world.
3. Exploitation of hydrocarbon resources: Europe and North America have significant interest in the exploitation of oil and gas, mineral and other resources in high latitudes offering opportunities for the energy and transport industry.
4. Sea transportation: the shipping industry has started to prepare for increased use of the Northern Sea Route (NSR), which is a much shorter sailing route between Europe, the Far East and the West Coast of North America.
5. Pollution: Europe is responsible for much of the pollution going into the Arctic regions. Improved understanding of transport of pollutants, including radionuclides is needed, as well as potential spreading of radionuclides from the Russian Arctic regions.

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Consequences of Warming in the Arctic with Reference to Northern Security

R.W. Macdonald

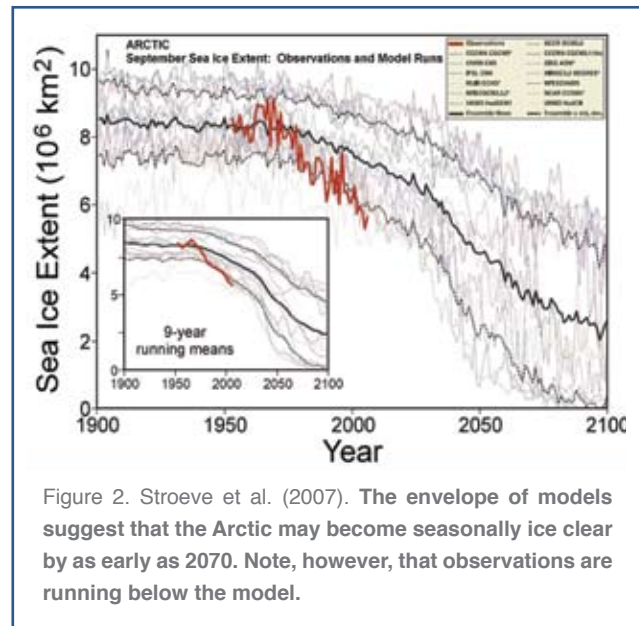
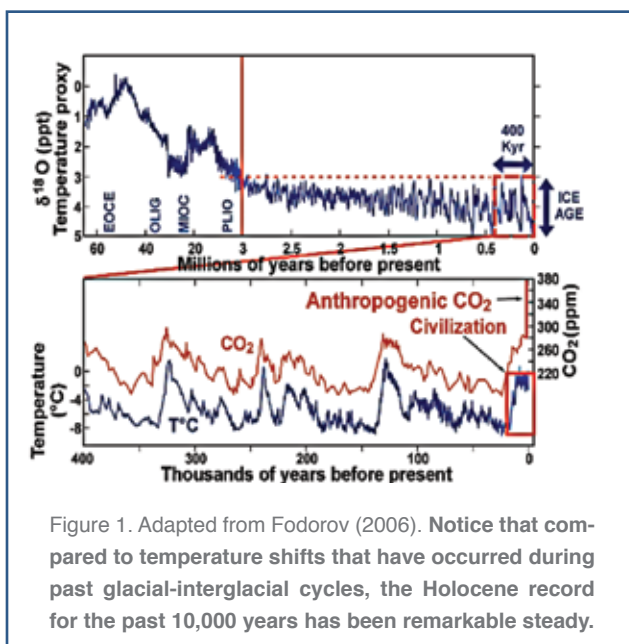
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Humans, for most part, have a false impression of climate stability; the past 10,000 years have been remarkably steady, based on ice-core records, when compared to the past million years or longer (Figure 1). But even within that stability, human populations such as the Greenlanders, the North American mid-west native cultures and the Mayas, have been impacted by climate change). Accordingly, when one considers the additional, very recent experiment we are conducting by storing greenhouse gases (GHGs) in the atmosphere, it seems likely that we can expect unprecedented surprises and challenges from climate.

In the preceding summary, Professor Johannessen presented several compelling conclusions with regard to Arctic sea ice: 1) Polar regions are the globe's most sensitive locations for warming; 2) Change in ice cover has clearly occurred during the past 20 years and 3) Models with and without GHGs lay a large part of recent change in Arctic sea ice at the feet of human emissions. Models, observations and paleo-proxies suggest that warming in the Arctic will be double of what it would be elsewhere. It is also worth adding that observations of loss of sea ice are running ahead of even the most pessimistic models (Figure 2), and recently modellers have suggested that the Arctic will become sea-



sonally ice clear as soon as 2013! My conclusion is that we have passed the Arctic sea-ice tipping point (Lenton et al., 2008).

I will take the previous presentation on sea ice as a point of departure and summarize the risks and opportunities that lie ahead for the Arctic. Forcing the climate by the human addition of GHGs to the atmosphere is a rather slow and, unfortunately, relentless process. If things were linear, the response of global systems would be slow and perhaps offer commensurate time in which we could mitigate or adapt and thus avoid needless suffering. What concerns most climate scientists is the potential for abrupt, irreversible change, and this is most likely to emerge out of feedbacks (Schindell, 2007). Globally, I can think of three important feedback systems: the cryosphere (ice-albedo), the biosphere (including the carbon cycle), and the hydrological cycle. It is interesting that the Arctic contains the element of surprise in all three categories, and the recent abruptness of change in Arctic sea-ice certainly implicates feedback. Time-series observations are putting us in a very good position to follow change in the sea ice, as presented by Johannessen. Research has also revealed long term trends for river inflow to the Arctic, which is well hidden by large interannual variability (Déry and Wood, 2005; Peterson et al., 2002). But then when we take the next step and ask what the consequential trends for biological and geochemical systems or thermohaline circulation are, we are in a much weaker position to answer, due to the lack of appropriate time series of sufficient length.

Now I want to turn attention to potentially abrupt changes in the Arctic, starting with hydrology and the thermohaline catastrophe. I think that the risks of in-

creased precipitation in the Arctic, or of increased river inflow to the tune of 2 km³/yr are rather small with respect to stalling the thermohaline circulation. Past evidence (the Younger Dryas) and models (De Boer and Nof, 2004) suggest that different circumstances and a lot of freshwater are required; a pulse of ~8,000 km³ has been proposed for the release of Lake Agassiz and initiation of the Younger Dryas. Indeed, if there is capacity in the Arctic to stall thermohaline circulation, it more likely resides in storage and release of freshwater from the Arctic Ocean into the North Atlantic convection sites. To address this question requires time series on freshwater storage and a capacity to distinguish between freshwater components of runoff and sea ice (Macdonald et al., 1999). As pointed out by Johannessen, the melting of the Greenland icecap offers a much greater threat, not only because potentially large volumes of freshwater are involved but, unlike sea ice, this sort of freshwater will raise global sea level (5-6 m) and possibly faster than projected in the Intergovernmental Panel on Climate Change (IPCC) report (Hansen et al., 2007). Hansen suggests that rather than the 50 cm or so projected by IPCC for the end of this century, we might be experiencing a metre or more. Sea level rise, together with lack of sea-ice cover over the Arctic's shelves in autumn, will lead to accelerated coastal erosion, putting northern coastal communities at risk; some will have to move, perhaps within a few years. This is an acute problem in Canada's western Arctic.

On the other hand, loss of sea ice in summer will open up opportunities for transport, offshore oil and gas exploration, and tourism. Although cruise tourism has grown steadily in Canada since 1984, and there is a perception that climate change will improve the prospects for tourism and accessibility to remote communities, it may not be quite that simple (Stewart et al., 2007). With change in ice climate comes change in character and distribution of ice; even with warming there remains the capacity in winter to produce thick ice through ridging and rafting, and pieces of thick ice may be more mobile and thereby present new hazards to inexperienced crews or un-strengthened ships. This new hazard also applies to offshore oil production and industrial transport. Certainly, any rapid change in ice character will demand as part of our security the development of better charts and coastal pilots and some clear answers regarding sovereignty and control of shipping through Canada's northern waters. The net risk-benefit here for Northerners is difficult to predict but could go either way. Managing new activities and taking advantage of user-friendly waters will require careful attention to engage Northerners in a way that they gain benefits that offset the risks.

The biogeochemical cycles of the Arctic, including food webs, will be affected by ice climate. Indeed, the Arctic offers intriguing possibilities in bottom-up processes (e.g. altering nutrient supply and light climate in the ocean) and top-down processes (e.g. removing polar bear or walrus habitat) (Figure 3). Humans, who depend on harvested marine animals both culturally and for much of their nourishment, are going to be affected by change in animal populations. They are interested in getting reasonable projections of change, especially insofar as the latter will improve the chances that management might help adaptation. In the case of bottom up change, we can project that ice loss will increase wind mixing and upwelling at the continental shelf edge – probably enhancing primary production (Carmack and Chapman, 2003). But at the same time, loss of ice as a habitat will affect many animals, the extent of which depending on how they use the ice (Carmack and Macdonald, 2002; Tynan and DeMaster, 1997). In some cases, animals like walrus want ice to haul out on and require shallow water depths and pelagic-benthic coupling that produce biologically rich, accessible sediments. Other animals, such as eiders, want open water with the same access to bottom food. Some animals, like bowhead whales, are tied to the ice edge possibly in part to protect them from killer whale predation. Will loss of ice in summer help these animals or lead to their demise?

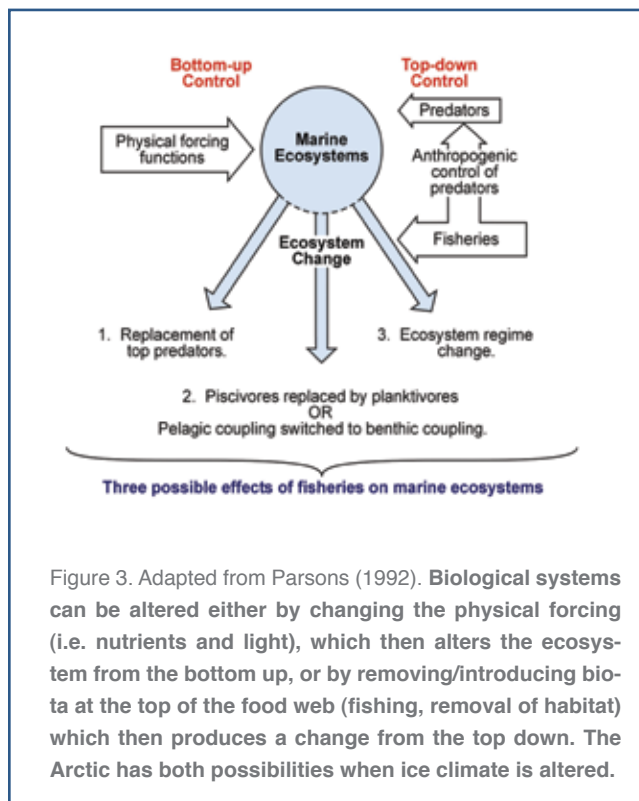


Figure 3. Adapted from Parsons (1992). Biological systems can be altered either by changing the physical forcing (i.e. nutrients and light), which then alters the ecosystem from the bottom up, or by removing/introducing biota at the top of the food web (fishing, removal of habitat) which then produces a change from the top down. The Arctic has both possibilities when ice climate is altered.

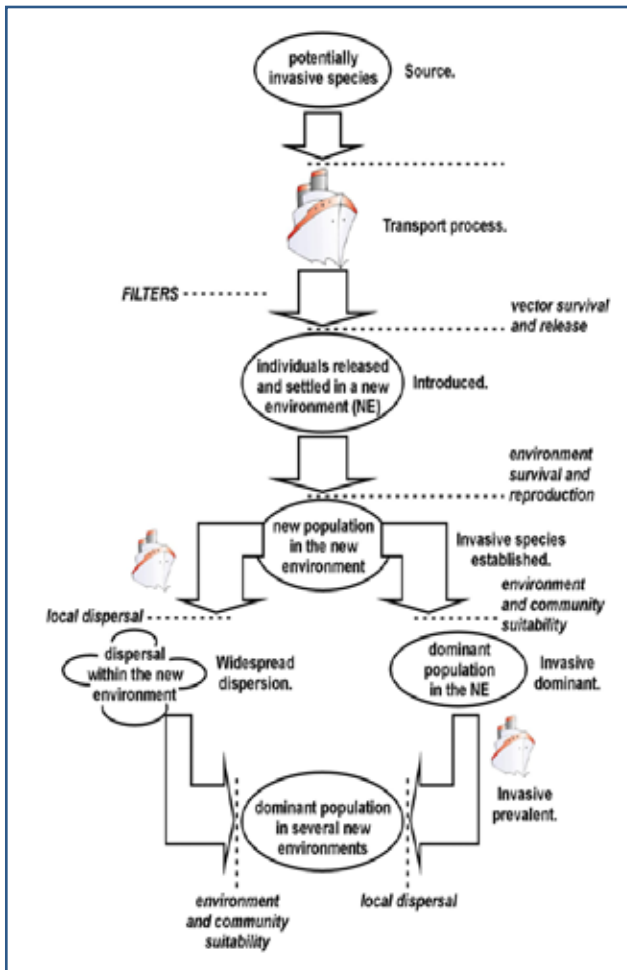


Figure 4. Adapted from Occhipinti-Ambrogi (2007). The introduction of invasive species can be a powerful and rapid mechanism through which climate change acts. It depends partly on the means to introduce new species (e.g. ballast water) and on the receptivity of the environment to which the species has been introduced. In the Arctic, both elements are undergoing change.

I probably need say little about the iconic polar bear, but it is clear already at the southern margin of the Arctic, in Hudson Bay, that some populations are struggling. This is due to disconnect from their main prey (seals pupping on the landfast ice) combined with the melting out of terrestrial denning sites owing to the loss of permafrost (Stirling and Parkinson, 2006). Connections here can be disrupted by rather small changes such as a loss of the landfast ice two weeks earlier than normal. These sorts of changes, some of which are very difficult to project, will cause hardship for Northerners both in terms of *availability* of food and *access* to food. Like other Arctic populations, humans need the abili-

ty to travel at certain times of the year to access traditional hunting locations. The loss of animals is one problem; the loss of access (e.g. melting ice and permafrost, loss of ice roads) is another. These changes affect not only access to food, but also whether remote communities can adapt in part by taking advantage of opportunities like tourism, hunt guiding or trade. Northerners have proven to be among the most adaptable populations on Earth. Abrupt changes, like some of those forecast for the Arctic, have apparently occurred in the past, for example, the Great Thule Migration during the so-called Medieval Warm Period (McGhee, 1996). But if we were able to examine what occurred in detail, we would likely find that there was an uneven distribution of benefit and risk, depending on whether the people hunted from ice or from water, ultimately leading to displacement or absorption of populations. It will be crucial to provide adaptive tools, and that will require the full engagement of northern communities. Furthermore, the opportunities and risks will differ from place to place, which will demand attention to detail; one size will not fit all,

In my view, one of the greatest sources of risk to northern communities will come from biological displacements, permitting access from invasive species and invasive diseases. Although it is appealing to think that warming of the polar region will simply lead to northward migration of species, some helpful, some not, the reality will be more complex. Already we have seen large-scale displacements of Arctic cod by capelin, and the energetics of such displacements can have population-wide impacts (Gaston et al., 2003). These impacts can affect the viability of traditional breeding locations, and increase the exposure to contaminants, discussed in more detail below. But perhaps the most important consideration regarding invasive species is that they can introduce abrupt change in organic systems (Figure 4, Occhipinti-Ambrogi, 2007).

New ice and water regimes may open the door to new species, and these will be introduced through shipping, currents and ice transport. Some species may even migrate to the Arctic simply because physical or biological barriers have been removed (Babaluk et al., 2000). Biological changes can occur also on land. For example the switch from tundra to low-leaf willow can be rapid and it has a feedback in the snow-albedo system (Hinzman et al., 2005). Animals that undergo migration and congregation represent special cases of vulnerability to change (Blais et al., 2007). Not only may they provide reliable sources of food to ecosystems and humans, but migratory species may have great difficulty in adjusting their behav-

our when breeding or rearing grounds become unfavourable through biological or physical factors.

Not all is gloom here – a user-friendly ocean with little ice that becomes more productive for valuable forage species, will present fishing opportunities. Clearly this provides an opportunity for Northerners – albeit one that requires very careful management. New species of commercially attractive species may displace traditional subsistence species. Past experience with commercially harvested resources has shown a universal overdevelopment to the point that the resource eventually declines (Figure 5, Vitousek et al., 1997). The risk is that we lose viability in both the commercial species and the subsistence species. With whales, it is clear that the Arctic has already experienced this exact problem, mediated by whalers from the south (Bockstoce, 1986). But climate change can produce another kind of problem to management and security. For example, increased polar bear sightings have been proposed as evidence of healthier populations, and accordingly, safety in increasing hunting quotas. An equally plausible hypothesis is that bear behaviour has been so altered because of changes in access to food and resulting starvation, that populations are distributed differently. If so, this might have a very different meaning for management. Time series and accurate population assessments are crucial for us to get this right.

On land, both food and water security are especially threatened by the destruction of permafrost. Not only does this alter the migration of water through systems, but it also affects human travel and human access to resources. Presently, sewage disposal is often contained by permafrost – there is a clear risk that loss of that historical containment will mediate waterborne diseases, and this is an issue that should be built into northern planning immediately.

Another issue that seems to be looming in many northern locations is desiccation. Small ponds comprise an enormous and important habitat in the Arctic. With change in ice cover, the balance between precipitation and evaporation has crossed a tipping point, with the result that many ponds are now drying completely, something they have not done in the past 10,000 years of record (Smol and Douglas, 2007). It's not clear what this means for humans or ecosystems, but the difference between a reliable aquatic refuge and complete desiccation suggests change in local or regional food webs.

Another potentially large polar climate feedback is the release of methane from the large paleo-reservoir held in terrestrial and continental shelf permafrost (Brook et al., 2000). On one hand this presents

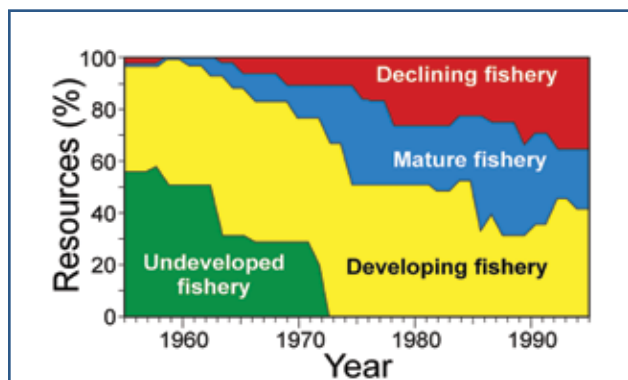


Figure 5. Adapted from Vitousek et al. (1997). Species subject to human extraction undergo several phases, the latter of which may include collapse. Given the potential for the Arctic to become more accessible and desirable as a fishery, careful management will be required to prevent over-harvesting and potentially the loss of subsistence resources.

a great risk to accelerate climate warming, but on the other hand there may be opportunities to intercept escaping methane in the Arctic to use for local energy. Converting potentially fugitive methane to CO₂ and gaining energy without transporting it from the south, would present a win-win for the North and for GHG emissions.

Two other climate-related risks are decrease in pH in oceans and lakes due to higher concentration of carbonic acid, and higher incident UV due to ozone destruction in the atmosphere. For the former, the Arctic Ocean appears to be about as vulnerable as other oceans, and this looming threat could globally decimate carbonate species. Shallow Arctic lakes may be especially vulnerable to pH change if the growth of a thick ice cover leads to CO₂ concentration in the dwindling water remaining under the ice. This is critical habitat and we know little about the potential effects. The issue with UV is well known and steps have been taken to address the problem of halogens in the atmosphere. In the Arctic, the crucial controls will be the ice and snow cover (Figure 6) and dissolved organic carbon in the water; both of these are responding to climate change. UV exposure is manageable for humans (clothes, sunglasses, protective cream) but not so for the rest of the ecosystem. Again, more research and time series are needed on how changing ice climates and the release of carbon from terrestrial systems may affect UV interactions with biota.

Finally, I want to discuss a topic that is dear to my heart – interactions between climate change and contaminants. Here, there are many opportunities for surprises, and not just in polar regions (Macdonald et al., 2005; Schiedek et al., 2007). Put succinctly, climate can affect the con-

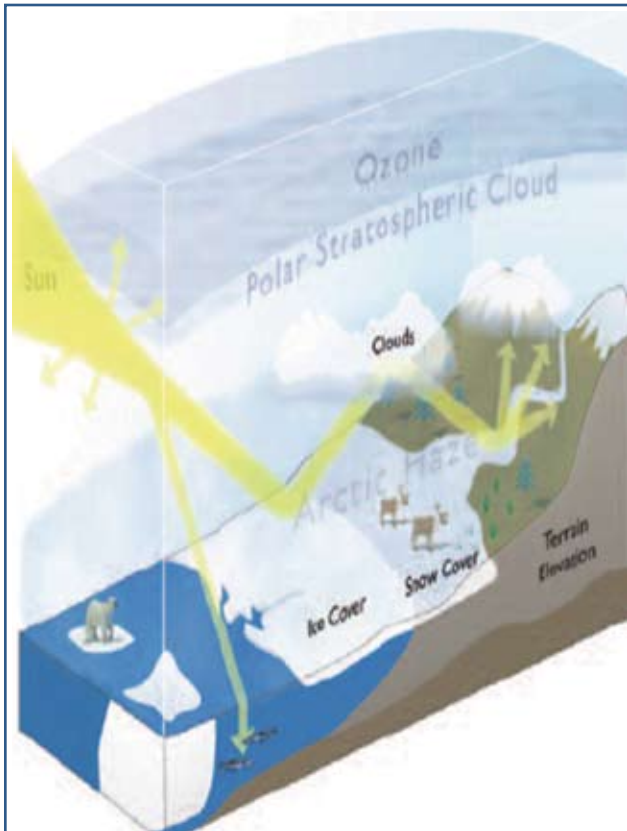


Figure 6. Source – ACIA (2005). Ecosystem exposure to UV in a changing Arctic will depend more on changing snow and ice and dissolved organic matter in the water than it will on enhanced exposure through ozone depletion.

sequences of contaminants on ecosystems in two fundamentally different ways; by altering the exposure and by altering the vulnerability (Couillard et al., 2008a; Couillard et al., 2008b). In the exposure equation, the alteration of organic and physical pathways provides many opportunities to alter magnification of contaminants (Macdonald et al., 2002). But perhaps an even greater concern is that climate variables that put animals at the edge of survival (due to nutritional stress, UV exposure, disease exposure) also make them especially vulnerable to the effects of contaminants. One illustrative case has already been proposed for the populations of seals in the Baltic and North Seas (Dietz et al., 1989). In this case, PCB exposure damaged the immune system of the seals in question. Nothing happened until a migratory seal traversed the North Atlantic (something that climate change might have facilitated) and introduced a distemper virus to which this seal population had no immunity. There were massive die-offs. Was it contaminant or was it climate? Well, both. Disease vectors, for example West-Nile virus, are sensitive to population distributions that are affected by climate. Among the contaminants in

the Arctic, I think Hg (mercury) is at the top of the list for concern, especially as the Hg cycle is likely to respond in unanticipated ways to changes in ice and organic carbon cycling (Outridge et al., 2008). Again, we are not constructing Hg time series with sufficient sophistication.

In summary, change will require Northerners to adapt and probably to encounter the hardship of altered access to food, transport and water consequent to loss of sea-ice, sea-level rise, temperature rise and permafrost destruction. Some of these – like sea-ice melting and permafrost destruction, appear not to be reversible.

Proposed Action:

- In accord with IPCC (2007) projections and the Stern Report (http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cfm), we need to adopt the optimistic attitude that *it is not too late* to mitigate GHGs, and that society needs to accept the challenge of stabilizing CO₂ in the atmosphere. Optimism is the only attitude that leaves us obliged to act. One of the Arctic canaries, sea-ice, is at the bottom of the cage, and we know far too little about how the other ones are doing.
- Northerners need to be fully engaged in determining risks, benefits, mitigation and the development of time series to observe change in the North.
- Possibly one of the greatest impediments to understanding and managing change associated with climate in the North is that we lack coherent time series of sufficient sophistication to address the ongoing changes. In particular, we need trends for biogeochemical cycles (i.e., Northern Observatories) to inform us of the consequences of loss of sea ice and permafrost to ecosystems and humans. These time series are also needed to validate biogeochemical and ecological models.
- Food security will be threatened by change in food availability, change in access to food, and contaminants like Hg. Traditional foods are a fundamental component of northern culture such that re-

placement by foods from the south will not alleviate the risks here. Protection of traditional foods will require astute recognition of how climate change is redistributing wildlife populations in terms of time and space – again requiring better population time series.

- Opportunities will emerge in the North as a consequence of change, potentially including tourism, fisheries, aquaculture, transport, and energy development. Managing these opportunities so that benefits outweigh risks for Northerners is crucial.
- Fresh water in northern communities may be at risk. Developments to secure safe water supplies need to be planned immediately given the potential changes in permafrost containment and desiccation of small ponds.
- Contaminants remain a threat – especially Hg – and time series need to be maintained or increased in tandem with other time series. Research is also needed to determine whether there are any effects for the most exposed species.
- We hope to achieve as a legacy to the International Polar Year an Arctic treaty – as was done for the Antarctic some 50 years ago.

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URSUS MARITIMIS ON SEA ICE NEAR SVALBARD - PHOTO BY HANNES GROBE

Succeeding Putin in Power
Notes for Luncheon Remarks
April 11, 2008

Christopher Westdal

Former Canadian Ambassador to Ireland, Russia, and for Disarmament and Permanent Representative to the Conference on Disarmament at the UN

Thank you, Dr. Simons, for that generous introduction. I'm honoured, truly, to address such a distinguished assembly.

To start, I should tell you that by the time, last week, my friends and disarmament partners, tried and true, Jennifer and Jayantha had tracked me down (which wasn't easy; I've been lying low) and invited me to take part here, all the speakers for the panels and the meals had been chosen (a highly impressive roster indeed), so we agreed I'd be ... "on the bench" ... for service as need be.

Well, when Jayantha called on the weekend, the need had unexpectedly turned out to be this luncheon address ... rather more than I'd expected ... and later than would let me prepare many remarks, let alone a formal "keynote" address, on any ground - or ice - that was new to me.

It's not that I haven't had experience of nuclear arms control and disarmament. It's rather that my experience is more or less a decade old. I was Ambassador for Disarmament in 1995, when the Nuclear Non-Proliferation Treaty (NPT) was extended indefinitely without a vote, and when - thanks to Jayantha Dhanapala, in some of his finest hours (which, note, are hard to single out, there have been so many) - that indefinite extension, that *permanence* was joined with *accountability*, with agreed objectives and principals intended, ultimately, to fulfill the Treaty, to keep the promise at its heart.

I was in that role again at the NPT Review eight years ago, when so much hope was invested in the weapon states' "unequivocal undertaking" to disarm and in the Thirteen Steps they vowed to take to do so.

I was later in Geneva and New York for four years at the Conference on Disarmament and the First Committee, spinning wheels in ruts of frustration, and then, for the last five years, I was elsewhere, mainly in Moscow, keeping track, regularly disheartened, as those promises were systematically set aside, withdrawn or simply broken, and as nuclear weapon technology, production, testing and arsenals proliferated, from the six, to include Israel (or the thirty odd, to include NATO), to the *who-knows-just-how-many* today.

This experience of mine notwithstanding, there are many here with far more current expertise in this field than my own. Jayantha and I agreed though, that I might well talk about Russia, given my recent work there, and that talk about Russia would be quite to the point here, directly relevant to our interest in Arctic security and the prospects for an Arctic Nuclear Weapon Free Zone (NWFZ).

Talk about Russia is pertinent because security prospects around the North Pole are surely a function of the security relations prevailing between major Arctic powers - Russia, the US, the Scandinavians, and us Canadians - Russia and the West, in sum. Talk about Russia is pertinent as well because prospects for NWFZs are, similarly, a function of prospects generally for nuclear arms control and disarmament action by Russia, the US and other Nuclear Weapon States.

I will make three main related points:

- First, that one of the best ways to promote Arctic security is to promote constructive security and other relations between Russia and the United States.
- Second, that Canada, given its geography, has obvious national security interest, if not indeed global security responsibility, in encouraging such amity between those two nuclear powers, who are, after all, our neighbours and whose nuclear arsenals are by far the largest on earth: the stuff, let us never forget, of our possible annihilation.
- Third, that an essential early step in the promotion of more constructive relations is sure to correct the relentless distortions in western media coverage of Russia.

Bear Baiting

First, then, briefly, to the point of promoting constructive security relations between Russia and the US, the Arctic's major powers.

You know, it's precisely because the bear is such an apt, enduring symbol of Russia that it's worth thinking a bit about the temperament of bears - and who

better to do so than us Canadians, who live with so many of them?

They're all over this West Coast, for sure. And they visit my yard, 25 minutes north of Ottawa, all summer long, to raid the garbage and the orchard and to leave behind great heaps of waste.

The point is that Canadians have countless close encounters with bears every summer hour – yet many more of us are struck by lightning than ever are attacked by one. The bear is in fact, a pacific animal, defensive – but one provokes him, baits him, at one's peril, for he will defend himself. He is powerfully equipped to do so, and he will never surrender. That's not *offense* though; that's the way of the world for a major power, like a great bear.

It was Henry Kissinger who said "there is nothing more offensive than Russia on the defensive." Well, when NATO, a nuclear-armed Western collective defense alliance, tries to expand to Russia's very edge, when the Anti-Ballistic Missile (ABM) Treaty is abrogated unilaterally and an ABM system is installed on Russia's doorstep, and all this is described by NATO and its members as "defensive," nothing Moscow need mind ... well, surely the tables have turned. If all that's not provocative when seen from Moscow, just what might we imagine would be?

It's Russia. It's not bad. It's not news.

Bear Sense

Second, again briefly, to the point of Canada's national security interest in amity between our neighbours – scarcely a novel approach to security for any country in any region – I wonder why we, and others – don't regard such promotion of good relations in our neighbourhood as being not only in our direct national *interest*, but as well surely prominent among what might be seen as Canada's global security *responsibilities*.

I wonder why we aren't prominent in this cause. Why we aren't making the most of the NATO-Russian council, for example? Why aren't we promoting joint Arctic-security patrols flying wing-to-wing with those ancient Russian Tupelovs to prove the security of northern polar airspace, say, or rehearsing coordinated responses to potential aircraft hijackings in the North, or practicing joint search and rescue drills: useful things, building confidence and cooperation in the place of old, Cold War games.

And I wonder at last, why on earth we Canadians, of all people, we who go out of our way to respect the

security perceptions and sensitivities of *our* powerful neighbour, should be prominent among those urging Georgians and Ukrainians (the express will of their people notwithstanding) to cock a snoot at the great power *they* find next door. It makes no sense to me. I don't think further NATO expansion would serve anyone's security interest. I think Canadian policy in this matter is in need of earnest reconsideration (particularly now that Germany, Italy and France, have made clear at Bucharest, that NATO is not at all united in pushing further east.)

Are we really imagining, should NATO be pushed right into the Caucasus, that we would promise to fight should need be to keep the Ossetians apart, say, or to subject the Abkhaz to Tbilisi's rule or to otherwise ignite a conflagration – invite chaos? We'd move our troops from Kandahar to Tshkinvali, is that it? And what, imagine Moscow wouldn't mind or move a muscle? What nonsense is this?

Bear Comprehension

Third, to the point of gross distortion in Western media coverage of Russia, let me focus, to be specific, on the sustained Russophobia and relentless attacks on Vladimir Putin on the covers and in the pages of Canada's "national" English-language weekly, a once venerable magazine, *Macleans*.

Some here may remember its cover story: "Russia Goes to Hell." The main problem with that headline was that it got the direction wrong: Russia's coming *from* hell, the hell of its tortured history and the hell of the chaos of the 1990s, when freedom was another name for nothing left to lose, when free market, democratic reform – *perestroika* with attitude, call it – impoverished millions, giving both capitalism and democracy dark black eyes. Statistics now reveal that that decade of reform was every bit as hard on the health of the common people of Russia as civil war, Stalin's famine and Hitler's Nazis had been on it earlier in that dreadful century.

I wonder just what *Macleans* would prefer – that Russians stick to their historic script, and writhe on through a few more decades of systemic calamity? Are that journals writers simply unaware that tens of millions of Russians, freed of the deadweights of Communist gibberish and barren draining empire, owning Russia like they've never owned it before, now in their eighth year of robust economic growth with unprecedented freedoms, are living the best Russian lives in history?

It's Russian *failure*, not Russian success, progress and achievement, like today's that would be hell to go to – for Russians and many others.

In that context, consider for a moment our media coverage of Russia's north Caucasus - Chechnya, Ingushetia and all that. Coverage was relentless through the war there - and through the horrors of Beslan, and it was harshly critical of Russia and Putin. Fair enough, the war was not launched by Putin (Yeltsin did that), but it was waged with brutal force - counterproductive of course, as usual - through the early period of his presidency.

Blame - and credit - where they're due. Putin learned from Beslan, from the start. He conceded that Russian security agencies had been "compromised" and that "jobs and better education" were urgently required. He then sent a key lieutenant, Dmitry Kozak, now Regional Development Minister, with big money to invest and a mandate to cut a deal with Kadyrov and to sort out the mess. He did so - and so far, touch wood, it's worked. Chechnya's no Garden of Eden, but Grozny's rebuilding now and the North Caucasus are described as a "minor miracle." There has, of course, been not a whisper of this in our papers. It's Russia. It's not bad. It's not news.

Under Putin, Russia's GDP has doubled. Personal incomes have been growing at 12 per cent a year. Since 2000, the average monthly wage has increased by more than 350 per cent. A middle class of 40 million and more has emerged, with huge positive implications for further Russian political progress.

It is no more shocking to have a former KGB official running Russia than it has been to have a former CIA chief (or his son) run the USA.

In this context of progress, of better lives at long last for the people of Russia, I find in that sorry excuse for a news headline, "Russia Goes to Hell," a sad want of simple human solidarity.

But it's been far, far from alone in getting my goat. Not long ago, *Macleans'* cover featured an aggressive "Vlad the Terrible" and then last month ran a lead interview with Edward Lucas, the *Economist's* Russia hand, in which he promotes his book, "*The New Cold War*" (taking place on some other planet, it must be, than this one); warns of another Munich, of the dangers of appeasement (that loaded term); posits that he knows better than they do what's good for the Russian people; argues that it's "shocking" to have a former KGB official running Russia; and explains, with well-worn condescension, that those who'd disagree with

him have "lost their moral compass ... and need waking up".

I am wide awake, with my moral compass in hand. Mine, though, is quite at odds with Lucas - or his magazine's, or *Macleans'*.

Mine tells me that to equate Putin's Russia with Hitler's Germany or Stalin's Soviet Union is to betray a stunning failure of historical perspective and to insult, all at once, the intelligence of readers, the President of Russia, the Russians who support him and the memory of the countless victims of Nazi and Soviet totalitarianism.

My moral compass tells me that, all Russia's problems notwithstanding, Vladimir Putin has in eight years, led that crucial federation from alarming disorder, despair and derision, to stability, hope and progress, an achievement of historic scope and positive consequence.

My compass tells me that, whoever's done the better job, it is no more shocking to have a former KGB official running Russia than it has been to have a former CIA chief (or his son) run the USA.

My compass tells me too that the oft-echoed *Economist* should find a more contemporary calling than shop-worn anti-Sovietism - and should spare us all its restless, needy yearning, whatever the facts, for enemies in Moscow.

Bear Respect

In sum, I think we should stop picking fights, where none need be, with Russia. We have plenty of other problems on earth to deal with and should welcome Russia's help doing so. I think we Canadians should be doing our utmost - which is far from what we are now doing - to promote good relations between our neighbours. And I think we're right poorly served by journalists who seem to have dozed off a decade or two ago - and have clearly lost the plot. It would be good for us all, and for Arctic security too, were they to find it again.

Finally, a few closing thoughts, mainly about our other big neighbour. There is in my view, much to criticize in the last eight years of US foreign policy. It has done very few much good. I do credit President George Bush for this, though: through it all, he kept the faith in his judgment of character and his friendship with President Putin. I'm sure it took spine in his neo-con circle to do so. Whatever, battered though they may be, and regularly, US relations with Russia are in a whole lot better shape today than they might well have been had George Bush bought the lie that Vladimir Putin was some wannabe tyrant, leading his hapless people back to

the USSR. George didn't, Vladimir wasn't and isn't; that's all good.

Last now, let me remember (as I did in reports to Ottawa) George Kennan, the great American diplomat who wrote that famous long telegram advocating the "containment" of the Soviet Union (and who must spin in his grave as that term is revived now, in an utterly different world).

In 1951, with typical prescience, Kennan expressed better than I ever might some advice for his compatriots which we might all take to heart:

When Soviet power has run its course, let us not hover nervously over the people who come after, applying litmus papers daily to their political complexions to find out whether they answer to our concept of "democrats." Give them time; let them be Russians; let them work out their internal problems in their own manner.

And then this, as good today as it was then:

The ways by which people advance towards dignity and enlightenment in government are things that constitute the deepest and most intimate processes of national life. There is nothing less understandable to foreigners, nothing in which foreign influence can do less good.

Wholeheartedly, I agree - and thank you for your attention.



USS RAY (SSN-653), USS HAWKBILL (SSN-666) AND USS ARCHERFISH (SSN-653) - US NAVY

Towards an Arctic Nuclear Weapons-Free Zone: A Step by Step Approach to Overcoming the Obstacle

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Introduction

In August 2007, the Canadian Pugwash Group issued a call for an Arctic Nuclear Weapons-Free Zone (NWFZ), which has been posted on the International Pugwash website and the Canadian Pugwash website.¹

In an article in the *Canberra Times*², Dr. Ramesh Thakur of the University of Waterloo argues that the Antarctic Treaty of 1959 would be an excellent model to emulate in the establishment of such an Arctic nuclear free weapon zone (NWFZ). I will argue here that the growing economic activity, competition for resources, plans for increased militarization, and existing nuclear deployments in the Arctic Ocean and its surrounding littoral combine to make the Arctic and Antarctic regions “polar opposites” metaphorically as well as in fact.

The Distinctive Nature of an Arctic NWFZ

The call for a NWFZ in the Arctic breaks new ground in the history of such legal regimes. The Antarctic Treaty, in common with the NWFZ treaties in Latin America, the South Pacific, Southeast Asia, and Africa, sought to prevent the nuclearization of areas free of nuclear weapons. An Arctic NWFZ could only be established by rolling back extensive nuclear deployments and nuclear-related military activities in the Arctic Ocean and littoral. This breaks entirely new ground and realistically could only be accomplished in conjunction with other nuclear arms control measures involving the arsenals of the major nuclear powers. In effect, while existing NWFZ treaties seek to create a legal firebreak to prevent nuclearization in areas traditionally free of nuclear weapons, an Arctic NWFZ would be (to extend the metaphor) a legal water bomber to control and reverse the spread of nuclear weapons in areas where they already exist and are likely to proliferate further. This will be a formidable task.

The Rationale for an Arctic NWFZ

Precisely because of the many obstacles facing the establishment of an Arctic NWFZ, it is worthwhile to begin by recalling its rationale. To quote the Canadian Pugwash Group’s August statement:

The inexorable progress of global warming is leading to a rapid shrinking of the polar ice cap, and scientists predict this trend will continue and even accelerate. The process will affect the global environment and will have destructive environmental and ecological implications for the Arctic region.⁴

Rapid Arctic warming also has profound political and economic implications. The shrinkage of the icecap could soon allow commercial ship navigation through Arctic waters,⁵ and much easier access to seabed resources. This is leading to a flurry of legal claims and counterclaims regarding transit rights and ownership of valuable seabed resources.⁶ Because the legal regime governing these claims is ambiguous and incomplete,⁷ states with legal claims and economic interests in the region may be tempted to create “facts on the ground” by establishing or reinforcing a military presence above the Arctic Circle. On August 10, 2007, Canadian Prime Minister Harper announced plans to construct two new military facilities in the High Arctic adjacent to the Northwest Passage sea route.⁸

Ecological damage caused by global warming in the Arctic would be compounded by further militarization. Competitive militarization could lead to increasing tensions and hostility. The best way to foreclose that possibility would be to strengthen and expand the legal regime regulating activities in the Arctic and remove ambiguities in dispute resolution processes as they apply to that region.⁹

Nuclear weapons are at once, both the most dangerous form of militarization, and the most dangerous source of environmental pollution in the region.¹⁰ There is no question that a nuclear-free Arctic would be a safer and more peaceable Arctic. The issue is – how can that be achieved.

The Obstacles to an Arctic NWFZ

There are two main “facts on the ground” that make an Arctic NWFZ impossible without additional, complementary disarmament measures. The first is that the two largest nuclear powers regularly deploy nuclear-capable submarines in Arctic waters. The Americans do so to assert their global military presence, and to attempt to acquire, and in a crisis neutralize, Russian ballistic missile firing submarines.¹¹

For the Russians, however, the Arctic is critical as a basing area for the submarine component of their nuclear forces. The largest and most important naval base for Russian ballistic missile firing submarines, Zapadnaya Litsa, is located with its four ancillary facilities on the Kola Peninsula north of the Arctic Circle.¹² The most modern ballistic missile submarines are maintained there, as are development and research facilities to modernize the Russian Submarine-launched ballistic missiles (SLBM) fleet. The time and effort spent to develop a new generation of Ship Submersible Ballistic Nuclear (SSBN) - designated the Borei class,¹³ suggests that, under present conditions, the Russian naval presence north of the Arctic circle is likely to grow rather than diminish. Moreover, these submarines' patrol areas are almost exclusively in Arctic waters, specifically in the Barents, White, and Kara Seas.¹⁴ United States Submarine Nuclear (US SSN) activity and passive sonar arrays in the Greenland, Iceland, and the United Kingdom (GIUK) gap make it unsafe to patrol outside these waters.

This ongoing and expanding reliance of the Russian Federation nuclear forces on Arctic bases and waters means that a comprehensive Arctic NWFZ would be seen by the Russian government (reasonably enough) as one-sided, and certainly would be vetoed by it. But this does not mean the idea is (my apologies) dead in the water. There are two avenues that can be pursued to work towards an Arctic NWFZ, which I will label "start small" and "build large".

A First Step

A first step in "starting small" would be to declare the Northwest Passage a NFWZ. The Canadian government has long declared the Northwest Passage - a narrow ship channel wending its way through the Islands of the Canadian Arctic Archipelago - to be Canadian internal waters. Recently it has begun to assert this claim more aggressively, both verbally and by plans to purchase patrol boats for use there.¹⁵ For its part, the US and the EU claim that the Northwest Passage is an international strait, and that ships of all nations may pass under the traditional right of "innocent passage".¹⁶

Nonetheless, for the next few years, this challenge will be more practical than theoretical, at least for surface traffic. Still vulnerable to ice jams and clogged with shoals, it will be some time before the passage remains a commercially feasible route.¹⁷ But the issue is more critical with regard to nuclear weapons. If the Northwest Passage is deemed an international strait, then both surface ships and submarines carrying nuclear weapons may transit without notification.¹⁸ If

they are Canada's internal waters, Canada could veto nuclear transit. In practice, Canada and the US conveniently ignore the passage of American submarines, and most experts believe it inconceivable that Canada would veto such a transit.¹⁹

There seems no reason why a compromise could not be struck with regard to surface traffic. In return for recognition of the Northwest Passage as its internal waters, Canada would certainly be willing to enter into a binding agreement allowing free passage subject to stringent safety regulations. If these safety regulations included a ban on nuclear fissile materials, a *de facto* NWFZ would have been created on the surface of the Northwest Passage. If Canada makes it clear that its concern is for maritime safety and not the denial of the economic rights of other nations, such an agreement is conceivable. Negotiations may have to wait until after January, 2009, but in the meanwhile Canada would do well to dial down the military rhetoric and stress its concerns for safety and environmental security, particularly on behalf of the First Nations inhabitants of the Arctic.

Manoeuvring in the narrow, shallow, shoal-infested waters of the Passage a submariner's nightmare

The submarine issue is more problematic. It will probably be impossible to induce any US Administration to agree to refrain from submarine transit under all conditions, if only because they wish to deny these waters to the Russians. But since the Bush - Gorbachev agreement of 1991, US patrol submarines no longer carry nuclear weapons, and while the matter is highly classified, there is no evidence that SSBN's have ever transited the Northwest Passage. Three times the displacement of patrol submarines, their size, length, and single propeller make manoeuvring in the narrow, shallow, shoal-infested waters of the Passage a submariner's nightmare, all the more so because rapid manoeuvring could cause them to defeat their mission by making detectable noise.

Risking a five-billion dollar vessel to prove a point is an unlikely step even for the US Navy.

So, the submarine issue is one of those issues - typical of American military doctrine - that is readily soluble in practice but difficult to deal with as a legal matter. Almost certainly the Americans no longer patrol with nuclear weapons in the Northwest Passage. But because of the rigidly-held US Navy policy of "refusing to confirm or deny" the presence of nuclear weapons on board American warships, they may be un-

willing to guarantee this. Perhaps (again, after January 2009) they could be induced to simply undertake not to deploy nuclear weapons in the Northwest Passage, with no mention of specifics.

A NWFZ in the Northwest Passage would be a good start, but a long way from the broader goal of a NWFZ in the Arctic. To achieve this would require negotiations on a far broader canvas.

A More Ambitious Canadian Initiative

Canada could begin this process by calling for multilateral negotiations to lay the groundwork for a limited NWFZ in the Arctic, including but not limited to Arctic nuclear facilities and ancillary installations such as radars, and tracking facilities, satellite downlinks, and other elements of nuclear installations deployed in the Arctic. Included as well should be nuclear environmental issues such as storage facilities, waste disposal, the mining of nuclear materials, the use of nuclear power, and more generally, the upgrading and tightening of standards for the handling of all radioactive materials in the region. Finally, it is vital to include the concerns of indigenous peoples as a core element of the treaty.

Recognizing that an Arctic NWFZ presents unique challenges, it is probably impossible to expect universal agreement at once. If even a handful of nations were to sign and ratify at once, the treaty could be left open for further ratification.

Nuclear weapons represent tremendous dangers, but also an historic opportunity.

Perhaps the most difficult question in an initial effort at multilateral agreement will be whether or not to include restrictions on maritime transit of nuclear weapons through Arctic waters. A powerful argument in favour of restrictions is the example of the 1959 Antarctic Treaty, which has thus far restricted all nuclear, and indeed all military, activity in the Antarctic.²⁰

But the Antarctic is unique in being uninhabited. All other regions of the world not yet in NWFZs – including the Arctic – either include existing Nuclear Weapons States (NWS) or border with them.²¹ Furthermore, all existing NWFZ treaties tolerate the transit of nuclear weapons through the territorial waters of the zonal states.²²

So despite the obvious parallel with the Antarctic, a strong argument could be made for a more modest beginning or, at least at first, not trying to outdo the achievements of existing NWFZs.

Building Large

In any case, to negotiate a truly comprehensive treaty to ban all nuclear weapons north of the Arctic Circle will be a formidable challenge.

As noted above, the traditional role of NWFZs are to prevent the geographic spread of nuclear weapons rather than to roll back existing deployments. Obviously, as explained above, the Russian Federation will consider a stand-alone Arctic NWFZ to be heavily biased against it. It follows that a comprehensive set of nuclear disarmament measures must be put in place to “balance” the Russian strategic disadvantage for it to have any hope of success.

In what follows, I assume a hypothetical world in which the leadership of the United States and the Russian Federation are much more receptive to nuclear disarmament initiatives than heretofore. In such a world, the two major nuclear powers would begin to take seriously their obligations under Article VI of the Non-Proliferation Treaty (NPT), and specifically their re-affirmation of the “13 Practical Steps” agreed to at the 2000 NPT Review Conference.²³

It could be argued that such a world is gone forever in the wake of 9/11, the American withdrawal from the Anti-Ballistic Missile (ABM) Treaty, its failure to ratify the Comprehensive Test Ban Treaty (CTBT), the virtual collapse of the 2005 NPT Review Conference, and the ongoing plans for the modernization of both delivery systems and nuclear warheads in the United States and the Russian Federation. But at the beginning of this year, a prestigious group of Americans, all formerly top national security officials in both Republican and Democratic Administrations, publicly urged for a return to a policy agenda designed to rid the world of nuclear weapons:

Nuclear weapons represent tremendous dangers, but also an historic opportunity. US leadership will be required to take the world to the next stage – to a solid consensus for reversing reliance on nuclear weapons globally as a vital contribution to preventing their proliferation into possible dangerous hands, and ultimately ending them as a threat to the world.²⁴

The authors go on to state that nuclear elimination is the ultimate precondition for an end to the threat of nuclear terrorism, and urge candidates for President in 2008 to engage in a fundamental debate about the role of nuclear weapons in national security. The same month saw a ringing endorsement of this article by former Russian President Mikhail Gorbachev.²⁵ With

the endorsement of such prestigious men, the re-activation of the pre-9/11 nuclear disarmament agenda can no longer be deemed fantastical.

The details of the plan proposed by these leaders are beyond the scope of this paper. Interested readers may refer to the policy brief, "Reykjavik Revisited," published in September of this year,²⁶ which outlines this so-called "Hoover Plan" in detail, along with lengthy discussions of timelines and obstacles. The bottom line is that they call for the replacement of the 2002 Moscow Treaty with a new US-Russian treaty, calling for a reduction of strategic warhead numbers to 500 on each side,²⁷ assuming an agreement to limit sharply the deployment of American ballistic missile defense (BMD) interceptors.

If such a reduction were to be achieved, an Arctic NWFZ would be transformed from a pipe dream to a plausible reality. Already, the total number of fully deployed Russian land-based ICBM warheads is probably fewer than 1,000, rather than the 1,770 stated by the Russian Defense Ministry. Even if, as Russian generals have claimed, the single-warhead TOPOL-M will be re-equipped with a multiple independently-targetable reentry vehicle (MIRV) version, the reality is that for the next few years at least, the number of Russian ICBM warheads will decline rather than grow.²⁸

Nuclear elimination is the ultimate precondition for an end to the threat of nuclear terrorism.

Since the number of road-mobile TOPOL-M's as a proportion of Russian ICBM forces continues to increase, the Russians can achieve a secure minimal deterrent with its ICBM forces alone, if the Americans are also limited to 500 deployed warheads. Even without MIRV'ing the TOPOL, replacing their older silo-based SS-25's with road-mobile TOPOLs would bring their warhead total down to the 500 limit, while ensuring first-strike survivability.

If this 500-warhead limit can be achieved, there would no longer be a compelling incentive for the Russians to maintain ballistic missile submarines. They are far more complex and costly to build and maintain than road-mobile ICBM's, and – given the limits of Russian maritime geography and the present and future capabilities of American patrol submarines, which can very often track Russian SSBN's – are arguably less secure in achieving minimal deterrence.

Under a 500 strategic warhead limit, then, the Russians are likely to conclude that their SSBN capabilities are not cost-effective compared to improvements

in their mobile ICBM force. This opens the door for a comprehensive Arctic NWFZ. If the Russians decommission their SSBN's and close their Arctic bases, a *de facto* NWFZ would then exist, and a formal instrument could be negotiated forthwith.

Conclusions

No one should be under any illusions that the "Hoover Plan" with its 500 warhead limit does not represent an enormous political challenge in both major nuclear states, almost certainly a greater one in the US than in Russia. To date no US major presidential candidate of either party has seriously addressed the issue of the superabundance of nuclear forces, and both sides have been eager – for many, far too eager – to demonstrate their "toughness" on security issues. But once in office, the link the Hoover Plan makes between nuclear disarmament and preventing nuclear terrorism may provide a compelling rationale for new initiatives in the White House and Congress.

In one sense, an Arctic NWFZ would be a mere footnote seen against the backdrop of a comprehensive strategic nuclear weapons agreement between the United States and the Russian Federation. But the peoples of the Arctic – both First Nations and Europeans – are used to having historical footnotes determine their destiny. An Arctic NWFZ might be a mere footnote in the global sense, but it would be of immense importance to the peaceful development of the Arctic and the well-being of its inhabitants.

Endnotes

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Military Security in the Arctic

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During the high tide of the Cold War, Arctic security became a matter of Great Power Strategic Security. To the Soviet naval strategy, the access routes through the Baltic Sea and the Black Sea to the High Seas were vulnerable and potentially restricted. The target for the Soviet navy in the context of a major confrontation on the Central Front (in Europe) would have been the West's sea lanes of communication (SLOCs) over the Atlantic.

To the Soviet Union, the only reliable way to safeguard the decisive access to the Atlantic was to move through the Barents Sea and through the so-called Greenland, Iceland, United Kingdom (GIUK) gap. Correspondingly, the US naval build-up, peaking during the second half of the eighties, created opportunities to expand the American Anti-Submarine Warfare (ASW) capability north of the GIUK to challenge the Soviet submarine advances into the Atlantic. Dominance in the Arctic waters, especially the Barents Sea, became vital elements in the Great Power strategies.

True, things have radically changed with the end of the Cold War, but as much as the two major nuclear weapon states, even today, absurdly stick to their nuclear launch-on-warning postures, the strategic significance of the northern waters as sanctuaries for strategic submarines, still influence the considerations in the relevant capitals.

With the prospect of the Arctic becoming accessible for navigational economic exploitation, security concerns will be raised.

By accepting the hypothesis that a global warming will lead to large scale melting of the Arctic ice-cap, we expect that a number of significant events will lead to changes in the security environment in the Arctic. The most immediate development could be the opening of waters and shipping lanes with the potential for larger scale economic gains for international trade and commerce. At the same time, the economic vulnerability would represent a corresponding strategic relevance. The melting of the Polar icecap would create space for naval operations, including nuclear-powered and nuclear-armed submarines of both Rus-

sia and the US, with the potential for tension and incidents. Respect for the principles of the freedom of the seas, as expressed in customary international law and laid down in the Law of the Sea Convention, must be put in play. But it can be expected that these principles may come into conflict with the interests and ambitions of the Arctic coastal states.

Furthermore, the opening of new ice-free areas would create opportunities for the search for oil and gas reserves. Little is truly known about what is hidden and can be explored under the Arctic Ocean, but much is anticipated. However, we have to recall that large portions of those areas are not the property of any individual state. Therefore, we have to expect a scrambling of national interests to claim rights over, even ownership of, portions of the seabed supposed to contain energy reserves.

The potential for conflict is obvious when competing claims and interests clash. A harbinger of things to come was the Russian action to plant a flag on seafloor precisely at the actual North Pole; other Arctic states cannot be expected to stay passive. It has to be foreseen that steps and measures will be undertaken in one way or the other to secure national control. Resource competition can turn nasty indeed. Even among the best of friends – remember the “mini war” between Britain and Iceland on fishing in the northern waters – conflict of interest can become tense.

There can hardly be a better case for creating functioning multilateral procedures and legal institutional arrangements – within or outside the framework of the United Nations – than the need to deal with issues on how to distribute this potential wealth. Other nations besides the Arctic Ocean littoral states will not abstain from making their interests felt. To begin with Sweden, Finland and Iceland, members of the Arctic Council with territory inside the polar circle (making them to Arctic states), would like to make their voices heard.

With the prospect of the Arctic becoming accessible for navigational economic exploitation, security concerns will be raised. Nowhere else in the world are the two major nuclear powers in such a close proximity to each other.

A Nuclear Weapon Free Zone

In the rush for resources and capabilities, it should not be forgotten that the Arctic and the Arctic Ocean, as much as the Antarctic and the High Seas, constitute the common heritage of mankind. A nuclearization of this part of the world would contradict the contemporary strivings of diminishing the role of nuclear weapons with the aim of finally abolishing them.

A Nuclear Weapon Free Zone (NFWZ) in the Arctic would be a manifestation of recognition of a special security identity for the Arctic. If respected, such a zone would encourage the major military powers to adjust the planning and disposal of their military resources accordingly.

Obviously, the establishment of a NFWZ in the Arctic would be a difficult diplomatic and political undertaking. A major complication would be the delineation of a zone that would encompass the territory of two nuclear weapon states (NWS). Existing zones do not include the territory of a NFWZ. However, it can be recalled that during the consideration in the 80's of a potential Nordic NFWZ the Swedish government proposed that in addition to the territory of the four Nordic States, the zone could include the Baltic Sea and part of the Soviet territory, specifically the three Baltic Soviet Republics, as well as the Kaliningrad district. It goes without saying that the Soviet interest in such a zone concept chilled, considering the presence of quantities of tactical nuclear weapons and nuclear weapons equipped submarines in that part of the Soviet Union. Furthermore, the probability that the Nordic zone would not cover the nuclear danger at sea north of the zone, implied that the Nordic zone concept would not be fully effective in reducing the likelihood that the area would be victimized in a nuclear war. These considerations contributed to the fact that the region's governments lost interest in the Nordic nuclear free weapons zone concept.

With all that in mind, the Arctic zone concept would have to geographically cover all the Arctic outside the national territorial waters (12 nautical miles from the baseline) of the littoral states. Such a zone would influence naval dispositions as long as the Seabed Treaty is in force and respected, so that nuclear weapons are not planted on the Arctic Ocean floor. The feasibility of disengaging the nuclear naval forces of the nuclear weapon states in the Norwegian Sea, Barents Sea and the other growing Arctic waters would also be a matter of limiting the conduct of strategic anti-submarine warfare. This would inhibit interactions between the naval forces of the great powers that could lead to use of nuclear weapons in northern waters. A mitigating element in this context is the US/Soviet (now US/Russian) bilateral Agreement on the Prevention of Incidents at Sea, which has been useful and tested, but is far from enough in a strategic situation.

Consequently, we hope strategic arms reduction talks will begin between Russia and the US, early after a new administration has been installed in Washington. Limits on strategic anti-submarine warfare have to be included in the subjects discussed.

An ingredient in Cold War nuclear strategies was

the cross-Arctic bombing routes. Though clearly less significant today, the strategic bombers are still part of the US triad, and correspondingly so of Russian nuclear forces. It should be possible to convince the US and Russia to discard this tool in their strategic arsenals in the context of an Arctic NFWZ. Again, that matter should also, at an appropriate moment, be put on the agenda of future US/Russia strategic weapons negotiations. Thus the concept of a NFWZ should include the airspace above the zone, in addition to the surface and the seabed.

I am sure that all of us are aware that nuclear powers are somewhat allergic to the comprehensiveness of the zone concepts. Therefore I am inclined to warn against putting all the eggs in one basket; that is to limit the consideration of nuclear security in the Arctic Sea region to a zone concept alone. I would argue that partial solutions and partial steps included in US/Russia strategic negotiations could, taken together, provide a pattern which constitute a *de facto* NFWZ.

Nuclear powers are somewhat allergic to the comprehensiveness of the zone concepts.

A Demilitarized Zone

With the accessibility of the Arctic growing due to the melting of the polar ice cap, fishery and offshore exploration of oil and gas will expand; military capability will follow. The smaller the space for diplomatic process and legal structures is, the greater the presence of the military will be. A demilitarisation of the Arctic is an ideal, but in the world of realpolitik, it will at best be a slow process, especially as long as the various claims on existing and detected resources are disputed.

Therefore, in the meantime, a set of military confidence building measures (CBMs) should be developed for the Arctic region; this is a tall order. My own experience of years in the business of negotiating military CBMs for Europe in the early 90s taught me that army and air-force interests understand their value. In contrast, under any flag, navies are notoriously reluctant to limit their freedom of action.

Still, the risk of military confrontation is real. The prevention response must be to encourage bilateral and multilateral initiatives, and to await a new international comprehensive Arctic treaty, based upon international customary law and the Law of the Sea Convention.

Conclusion

The climate changes of the Arctic region will be accompanied by economic and political rivalry in regards to transport, fishery, gas and oil – all property of greatest strategic significance, which will inevitably have serious security implications. And where security appears, military follows.

Therefore, it is high time to start thinking seriously and constructively on how to avoid the possibility that changes of the Arctic environment translate into tensions between states.

The first point on that agenda should be to reflect upon how to move the nuclear weapons potential out of the Arctic region. At the same time, trigger mechanisms built into the military dimension of security could be dealt with through military CBMs.

Nuclear Weapon Free Zone in the Arctic?

Jozef Goldblat

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Acute shortages of non-renewable sources of energy, occurring at a time of global warming, may generate acute inter-state conflicts. If the rivaling states happen to be nuclear-armed, the conflicts may degenerate into a wholesale catastrophe. Many influential people recommend that measures be taken to prevent these dangers from becoming a reality in the Arctic. One such measure could be the establishment of a Nuclear Weapon Free Zone (NWFZ). Not only would such a zone reduce international tensions in the region and facilitate the settlement of political, economic or environmental disputes to the advantage of all parties, it would also reinforce the global nuclear non-proliferation regime.

Introduction

Efforts to bring about universal nuclear disarmament by covering the world with regionally established denuclearized zones began even before the conclusion of the Non-Proliferation Treaty (NPT). So far, six international treaties have set up such zones in inhabited regions of the world. Four of them are in force: the 1967 Treaty of Tlatelolco, regarding Latin America and the Caribbean, the 1985 Treaty of Rarotonga, regarding the South Pacific, the 1992 Declaration on the Denuclearization of the Korean Peninsula (not in operation) and the 1995 Treaty of Bangkok, regarding South-East Asia. The remaining two treaties, namely, the 1996 Treaty of Pelindaba, regarding Africa, and the 2006 Treaty of Semipalatinsk, regarding Central Asia, have been signed, but have not yet entered into force. Denuclearization provisions have been also included in treaties regarding uninhabited areas, namely, in the 1959 Antarctic Treaty, the 1967 Outer Space Treaty, the 1971 Seabed Treaty and the 1979 Moon Agreement. There seems to be interest also in the Arctic. Having participated in the drafting of two denuclearization treaties, I am prepared to share my experience with those intending to build an Arctic NWFZ. I am, however, aware that given the dissimilar geographical circumstances, as well as different political, economic and strategic considerations of the states concerned, there can be no uniform pattern of denuclearized zones. The most important differences relate to the area subject to denuclearization, the scope of the obligations assumed by the parties, the right of transit, the protection of the environment, the relationship with other international agreements, and the exploi-

tation of natural resources. The purpose of this paper is to describe the hurdles encountered in the negotiations, and to explain how they were overcome. The lessons learned may prove useful.

Area of application

To delimit a denuclearized zone, some treaties have used geographic coordinates and/or a map, as in the Treaty of Tlatelolco or the Treaty of Rarotonga. In case of territorial disputes among the countries of the zone, or disputes over maritime boundaries, it was considered sufficient to state that the zone covered the land territory, all waters, and the air space above the participating states. However, the Caspian Sea, which lies in Central Asia, could not be included in the Semipalatinsk Treaty, because only two out of five littoral states (Kazakhstan and Turkmenistan) are covered by the zone – nor could the territorial waters of the parties become part of the zone. Because the Caspian Sea is a landlocked area not subject to the Law of the Sea regime, there is no legally recognized division line there between territorial and international waters. It proved unavoidable to leave the Caspian Sea, in its entirety, outside the geographic scope of the Treaty.

In the Antarctic, seven states claim sovereignty over different areas on the basis of discovery, exploration, geographic proximity or territorial continuity. Certain claims overlap, but some 15 per cent of the landmass remains unclaimed. The Russian Federation and the United States have made no claims of their own, nor have they recognized claims made by others, though the Antarctic Treaty applies to the whole area south of 60 degrees south latitude, including the ice shelves. The Treaty introduced a moratorium, implying neither renunciation nor recognition of previously asserted rights of, or claims to, territorial sovereignty in Antarctica, and prohibiting new claims or an extension of the existing ones. The moratorium could be terminated 30 years from the date of entry into force of the Treaty, but this has not happened. Opinions differed as to what should be considered “high seas” in the Antarctic region. For if the territorial claims were valid, there would be a territorial sea contiguous to the coast, and the high seas, as everywhere else, would begin where the territorial sea ended. If, however, it were generally admitted that no state exercised sovereignty in Antarctica, there could be no territorial sea there, and the high seas would begin at the coast. The latter interpretation could make it permissible for states to deploy naval vessels, whether nuclear or conventional, close to the shores of the Antarctic continent.

The South-East Asia NWFZ comprises the territories of 10 states, as well as their respective continental shelves and exclusive economic zones (EEZs). According to the

Bangkok Treaty language, the right of states with regard to freedom of the high seas is not to be prejudiced. But the United States expressed concern that because of the geographical extent of the Zone, which it considers inconsistent with the Law of the Sea, regular movement of nuclear-armed naval vessels and aircraft through South-East Asia would be restricted, and regional security arrangements disturbed. It refuses to provide negative security assurances (that is, assurances not to use nuclear weapons), to a zone as large as that prescribed in the Treaty. China objects to the geographical scope of the Bangkok Treaty, specifically to the inclusion of parts of the South China Sea (Spratly and Paracel Islands), to which it and some Association of South-East Asian Nations (ASEAN) members have conflicting claims.

In nearly all Nuclear Weapon Free zones, visits and transits of ships and aircraft carrying nuclear weapons may be permitted by the zonal state.

The geographic extent of the application of the Treaty of Pelindaba is illustrated by a map that includes the island of Diego Garcia (in the Chagos Archipelago), harbouring a US military base. The United Kingdom does not accept the inclusion of this island in the NWFZ, because the territory in question is part of the British Indian Ocean Territory. The United States noted that the Treaty does not apply to the activities on Diego Garcia, of states that are not party to the Treaty, and that consequently, no change was required in US armed forces operations there. Russia stated that as long as a military base of a nuclear power was situated on the Chagos Archipelago, the territory could not be regarded as meeting the requirement of a NWFZ. Outer space and celestial bodies constitute the area of application of the Outer Space Treaty and of the Moon Agreement, but none of these accords has defined the term "space." Only recently, in submitting to the Conference on Disarmament a draft treaty on the prevention of the placement of weapons in outer space, the Russian Federation proposed to consider as "outer space" the space "beyond the elevation of approximately 100 km above ocean level of the Earth." The proposal has not been discussed at the Conference.

Under the Seabed Treaty, the denuclearization area was defined as lying beyond the outer limit of a seabed zone, coterminous with the 12-mile outer limit of the zone referred to in the 1958 Convention on the Territorial Sea and the Contiguous Zone. The Convention was controversial and antiquated already at

the time the Seabed Treaty was drafted. There was no necessity to refer to it. A simple formula, without such reference would have served the same purpose.

Scope of the obligations

As parties to the NPT, the signatories of all NWFZs assumed an obligation to neither manufacture nuclear weapons, nor to acquire them by other means. In addition – and this is the principal contribution of NWFZs to the non-proliferation regime – they committed themselves to not allow the stationing of nuclear weapons on their territories ("stationing" is defined as implantation, emplacement, stockpiling, storage, installation and deployment). In certain treaties, even research related to the manufacture of nuclear weapons is explicitly prohibited.

Transit

In nearly all NWFZs, visits and transits of ships and aircraft carrying nuclear weapons may be permitted by the zonal state. Their frequency and duration are not limited by the denuclearization treaty. However, the great powers are not likely to request permission, because they would have to disclose the whereabouts of their nuclear weapons, which – as a matter of policy – they all refuse to do. In any event, introduction of nuclear weapons into the zone, even for a short time, whether in time of peace or in time of war, would defeat the envisaged goal of total regional denuclearization. Moreover, nuclear transit through one zonal state could endanger the security of another zonal state.

Environmental security

It took quite a long time to decide where nuclear waste should be allowed to be disposed of. The Treaty of Rarotonga bans the dumping of radioactive matter at sea within the zone, as does the Treaty of Pelindaba. The Treaty of Bangkok contains an undertaking of the parties to dispose radioactive wastes and other radioactive material, in accordance with International Atomic Energy Agency (IAEA) standards and procedures, only on land within their territory, or on land within the territory of another state consenting to such disposal. Under the Treaty of Semipalatinsk, the parties are prohibited from the disposal of radioactive waste of other states on their territory. The same treaty contains an undertaking of the parties to assist the efforts toward the environmental rehabilitation of territories contaminated as a result of past activities related to the development, production or storage of nuclear weapons, as well as to nuclear tests.

Other agreements

A serious problem arose regarding the relationship between the Semipalatinsk Treaty and other treaties. At the insistence of the Russian Federation, supported by some Central Asian negotiators, the following proviso was inserted in the draft of the negotiated text:

This Treaty (that is, Semipalatinsk Treaty) does not prejudice the rights and obligations of the Parties under other international treaties, which they may have concluded prior to the date of the entry into force of this Treaty." In the talks, reference was made to the 1992 Tashkent Collective Security Treaty concluded within the framework of the post-Soviet Commonwealth of Independent States. France, the United Kingdom and the United States strongly opposed this proviso. They argued that by allowing for other agreements to take precedence over the provisions of the Semipalatinsk Treaty, the article in question undermined the effect of the Treaty as a whole. To meet this objection, the Central Asian negotiators added a sentence saying that "the Parties shall take all necessary measures for effective implementation of the aims and purposes of this Treaty in accordance with the main principles contained therein."

This addition was found unsatisfactory. Since the Central Asian negotiators refused to delete the controversial text altogether, the three mentioned nuclear-weapon states voted against the UN General Assembly resolution welcoming the setting-up of a NFWZ in Central Asia. They also threatened not to sign the protocol intended to accompany the Treaty, unless the disputed provision was appropriately modified. It will be noted, however, that when a treaty specifies that it is not to be considered incompatible with an earlier treaty dealing with the same subject matter, the earlier treaty applies only to the extent that its provisions are compatible with those of the later treaty. This is a generally accepted rule of international law (*lex posterior derogat legi priori*) embodied in the 1969 Vienna Convention on the Law of Treaties.

Mineral exploitation

It is known that there are deposits of precious minerals on the Antarctic continent. Special attention is devoted to indications that its continental shelf contains large reserves of oil and gas. Economic activity is neither expressly permitted nor prohibited by the Antarctic Treaty. It is not considered contrary to the Treaty's principles or purposes.

It was, nevertheless, feared that if exploitation of the Antarctic mineral resources became a practical proposi-

tion, a struggle could erupt over national rights to territorial possessions containing these non-renewable resources. This could be a struggle among the original claimants, especially where claims overlapped, or between them and non-claimants active in Antarctica, or also with new claimants demanding a share, whether party or non-party to the Antarctic Treaty. To assert their declared rights over other contenders, or to guard against infringements on their economic activities, nations might resort to the use of force. This would bring about a collapse of the order prevailing under the Treaty; Antarctica would become a zone of rivalry and conflict.

A similar situation could arise in the Arctic. In 1987, the Canadian government was planning to acquire a fleet of nuclear-powered submarines to assert its sovereignty in the disputed areas. Conscious of this danger, as well as of possible serious adverse consequences of unregulated exploitation of minerals, the Antarctic Treaty consultative parties launched negotiations on a minerals regime for Antarctica. The negotiations resulted in the adoption in Wellington, in 1988, of the Convention on the Regulation of Antarctic Mineral Resource Activities (CRAMRA).

If exploitation of the Antarctic mineral resources became a practical proposition, a struggle could erupt over national rights to territorial possessions.

The Wellington Convention was to apply to all activities in question taking place on the continent of Antarctica and all Antarctic islands, including all ice shelves, south of 60 degrees south latitude, and in the seabed and subsoil of the adjacent offshore areas. CRAMRA would have provided an institutional mechanism for assessing the possible impact on the environment of Antarctic mineral resource activities and for determining their acceptability. It stipulated a set of environmental conditions to be met by prospective operators. These conditions would be enforced through a system of regulations and powers vested in a commission and regulatory committees. The Convention also provided for inspection of installations and stations associated with mineral resource activities.

Thus, instead of dissuading mineral exploration and mining, as several states desired, CRAMRA would have actually promoted such activities by creating a legal and political framework, within which mining rights could be obtained. Moreover, despite very strict environmental requirements, many considered a "mining convention" to be incompatible with the protection of the fragile Antarctic environment. Since several countries, includ-

ing Australia and France, decided not to ratify CRAM-RA, the Convention did not enter into force. Joint Franco-Australian efforts led to the drafting of a new agreement.

In 1991, the Antarctic consultative parties, meeting in Madrid, adopted the Protocol on Environmental Protection to the Antarctic Treaty. The signatories of the Madrid Protocol committed themselves to comprehensive protection of the Antarctic environment and designated Antarctica as a "natural reserve, devoted to peace and science." The comprehensiveness agreed upon consists in setting a uniform standard to assess all human activity on the continent. The Committee for Environmental Protection, established under the Madrid Protocol, is to provide advice and formulate recommendations to the parties in connection with the implementation of the Protocol.

The most striking aspect of the Madrid Protocol is its prohibition of "any activity relating to mineral resources, other than scientific research." This clause is considered by many as a moratorium, because 50 years from the date of the Protocol's entry into force, any of the Antarctic Treaty consultative parties may request a conference to review its operation and to amend it. A modification or amendment could enter into force after its ratification by three-fourths of the consultative parties, including all those states that were consultative parties when the Protocol was adopted. However, as regards the clause dealing with Antarctic mineral resource activities, the prohibition on such activities would continue even after the clause had been modified or amended, unless there were in force a legally binding regime, specifying agreed means for determining whether mining activities were acceptable and what the conditions under which they would be permitted were. The proposed modification or amendment of the clause in question should include such a regime. In view of these strict requirements, the ban on mining is, for all practical purposes, of indefinite duration.

Conclusion

The problems discussed in this paper may arise, in one form or another, during the construction of an Arctic NWFZ. Ways to settle disputes could be learned from the experience acquired in other regions. However, certain new approaches would be needed to deal with the existing situation. Account must be taken of the fact that the United States and the Russian Federation – the main actors in the planned denuclearization activities – are immediate neighbours in the Arctic; that both countries front directly on the Arctic basin; and that the Russian Federation exerts direct control over a large part of the Arctic littoral and claims more. These geopolitical considerations are compounded by divergent legal inter-

pretations of the Law of the Sea Convention's article on the continental shelf. In reality, however, the controversies are about who will take possession of the many billion tons of hydrocarbons lying buried in the ocean floor, but which are becoming accessible because of the rapid shrinking of the icecap. The dilemma is how to reconcile the requirements of national security with the economic needs of the states concerned. One could start by formally declaring the entire Arctic area a common legacy of mankind. Small and medium-size countries, especially those situated in the region, like Canada, seem to be in a position to initiate a debate on this subject. The interest in creating a new regime in the Arctic would increase, if the denuclearization efforts were made in parallel, as well as in conjunction, with the scientific investigations related to climate change. It will be recalled that it was the 1957–58 International Geophysical Year, which, by establishing and expanding scientific bases, initiated a search for an international regime in Antarctica.

Jozef Goldblat has been studying the problems of arms control since the late 1950s and has been involved in disarmament negotiations in various capacities, including service for the United Nations. He was active in the international commissions verifying compliance with the armistice agreements in Korea and Vietnam. From 1998 to 2006, he participated in the drafting of the Semipalatinsk Treaty, which established a NFWZ in Central Asia. He is Vice-President of the Geneva International Peace Research Institute (GIPRI) and Resident Senior Fellow at the United Nations Institute for Disarmament Research (UNIDIR) in Geneva. He lectures at universities and is the author or editor of 44 books, 105 essays and 145 newspaper and journal articles on truce supervision, arms race and disarmament problems. From 1969 to 1989, he directed the arms control and disarmament research programme at the Stockholm International Peace Research Institute (SIPRI). In 1987, Jozef Goldblat was awarded the Pomerance Award by the NGO Committee on Disarmament in recognition of his scholarship in the field of disarmament and arms control. In 2006, he received the Geneva Centre for Security Policy (GCSP) Award for his achievements in the field of international and human security, and was granted, by the President of Poland, the Knight's Cross of the Order of Merit for his contribution to the cause of international peace. In 2007 the President of the Republic of Italy bestowed upon Dr. Goldblat the title of the Knight of the Order to the Merit of the Italian Republic for the promotion of international peace and security through disarmament, arms reduction and non-proliferation.



SEAL HUNTER AT THE FLOE EDGE NEAR CAPE DORSET - PHOTO BY ANSGAR WALK

Political Climate Change in the Canadian Arctic

Tony Penikett

Negotiations Inc.

This paper describes the aboriginal land and governance treaties negotiated by Canada in the three northern territories over the last 35 years. The treaties, in combination with substantial federal devolution of program and resource-management responsibilities to the territories, have transformed the constitutional landscape and political climate of northern Canada. This new political climate has implications for Canadian debates on Arctic security and sovereignty.

1. The Yukon

The Yukon, Canada's most western jurisdiction was settled from north to south. The Bluefish Caves, 54 kilometers southwest the Vuntut Gwich'in village of Old Crow in northern Yukon, show evidence of human presence 25,000 years ago. In the late 19th century, whalers, missionaries and Mounties landed on Herschel Island in the Beaufort Sea. In 1896, a First Nation family fished a few nuggets out of the Klondike River and triggered the most celebrated gold rush in history. American miners flooded into the Klondike; Canada sent in the Mounties and, in 1898, created a new territory and territorial legislature at Dawson City (Yukon legislators have since gone on to the House of Commons speaker's chair, the office of the Deputy Prime Minister, and to become the first woman leader of a national party). In 1942, with Japanese forces threatening the Aleutian Islands, the American Army built the Alaska Highway across southern Yukon.

Even today, Yukoners live in a complicated relationship with Alaskans. The two communities continue to argue about shares of salmon in the Yukon River, which flows from southern Yukon lakes west through the Alaskan interior to the Bering Sea. Their offshore boundary in the Beaufort Sea is still in dispute, yet the Port of Skagway on the Panhandle gives the Yukon access to Pacific markets. The two jurisdictions have negotiated numerous intergovernmental agreements on colleges, highways, tourism marketing and wildlife – most signed without the advice or consent of Ottawa or Washington. During the Gold Rush era, neither capital negotiated treaties with the indigenous peoples of the Yukon or Alaska; this failure would echo into the next century.

At the beginning of the 18th century, aboriginal peoples were still the majority in North America, but as the decades passed, more and more settlers arrived to squat on eastern lands. In 1763, Pontiac, the Ottawa Chief, led all the indigenous Nations around the western Great

Lakes in simultaneous attacks on every British fort. All but one fell to Pontiac's warriors. Receiving dispatches of Pontiac's military genius, British Commander, Sir Jeffrey Amherst, briefly contemplated the use of germ warfare. Cooler heads prevailed and the British government adopted a new policy in *The Royal Proclamation of 1763*.

The Proclamation – Pontiac's Proclamation – provided that henceforth, settlers could only obtain land from the Crown after the Crown's representatives had purchased land from First Nations through publicly negotiated treaties. In effect, the British recognized First Nations' collective ownership of their lands, and the First Nations governments that ruled over them.

In a series of rulings between 1823 and 1831, the US Supreme Court endorsed these treaty-making principles. As a result, the US Government concluded almost 400 treaties as it won the West. In 1973, the Supreme Court of Canada reopened the questions of aboriginal land rights for all areas without treaties, such as British Columbia (BC), northern Quebec and the northern territories, when Thomas Berger took up the aboriginal title case of the Nisga'a Nation in northwestern BC.

Ever since, whenever industry plans a megaproject: hydroelectric dams in Quebec, oil developments in the Beaufort Sea, or pipelines through the North, government negotiators rush in to negotiate a surrender of aboriginal title. In 1971, following discovery of oil at Prudhoe Bay in 1968, the US Congress quickly settled native land claims in the state. In the "most generous" treaty ever, Alaskan Indians, Inuit and Aleuts received a billion dollars and title to 178,000 square kilometers of land. Because Yukon's Dene and Tlingit Nations have family and tribal links across the border in Alaska, the settlement there proved hugely influential.

When developers sought to build a natural gas pipeline down the Alaska Highway, Canadian treaty negotiators finally sat down with Yukon First Nations. After 19 years of frustrating negotiations, the territory's aboriginal communities signed agreements recognizing their collective title to 41,595 square kilometers – an area larger than all the Indian reserves created by Canada's 19th century treaties – \$250 million and tribal governance of their lands and communities with quasi-provincial and municipal powers. 15 years later, the Yukon still has more aboriginal self-government agreements than any other area in Canada. Congress had imposed a regime of corporate governance on their Alaskan cousins in their 1971 treaty, but Yukon First Nations firmly rejected that model. In 1993, as a hedge against broken promises, Parliament attached the Yukon treaty to the Canadian Constitution.

Negotiations were lengthy and aboriginal negotiators had to bargain hard, but the treaties amount to a

bottom-up constitutional settlement for northern Canada. Encompassing Aboriginal ownership of tens-of-thousands of square kilometers of land, hundreds-of-millions of dollars and quasi-provincial powers for tribal governments, the treaties negotiated across the Canadian North in the late twentieth century are huge improvements over 19th century treaties, which created permanently impoverished Indian reserves. Moreover, in 1982, Canada adopted a new constitution that recognized “existing Aboriginal rights,” the first country in the world to do so.

Parallel to the treaty negotiations of the last three decades, the federal government has also devolved most of the administrative powers of provinces to the territories, which have also experienced large-scale devolution provincial powers. Since the 1970s, the Yukon Territory has achieved responsible government and taken control of highways, hospitals, lands, minerals and forests. Perhaps, as important as these devolved powers, was the advent of “formula financing,” in 1985 arrangements between Ottawa, Whitehorse and Yellowknife. The early years of formula financing enabled the Yukon Territorial Government to spend a quarter of its total budget on much-needed infrastructure: roads, schools and colleges. The formula’s hidden genius was that it allowed territorial governments to build their capacities according to their own priorities and their own schedules:

Yukoners were less charmed by federal language policies. It was one thing to make Canada officially bilingual; it was quite another to impose bilingualism in a region where the “two solitudes” were Aboriginal and non-Aboriginal rather than English and French. After many years of negotiation, the federal and Yukon territorial governments eventually agreed to practical arrangements by which equivalent sums were spent on both Aboriginal – and French – language services.¹

2. The Northwest Territories

The Northwest Territories (NWT) once included most of Western Canada. Today, the Territory covers the area remaining after Manitoba, the Yukon, Saskatchewan, Alberta and Nunavut were carved out of the region. As this is a mineral rich area, prospectors found oil in 1911, gold at Yellowknife in 1935, and diamonds at Point Lake in 1991. During World War II, Port Radium supplied uranium for the first atomic bombs.

Not until 1967 did Ottawa move the capital city north to Yellowknife. Reflecting Dene and Inuit tradi-

tions, the NWT Legislative Assembly operates by consensus rather than partisan divisions. In debate, legislators may use English, French or any one of nine aboriginal tongues. For indigenous Northerners – not least those educated in the south – the teaching and honouring of indigenous languages in educational and governmental institutions is a human right.²

Treaties negotiated across the Canadian North in the late twentieth century are huge improvements over 19th century treaties.

Treaty 8 in 1899 and Treaty 11 in 1921 purported to settle Dene land claims in the NWT, but Canada had implemented neither. Pierre Trudeau’s government was actively supporting the construction of an Arctic Gas pipeline down the Mackenzie River Valley until October 1972 when the NWT elected an indigenous MP opposed to the project. A minority government in Ottawa quickly appointed Justice Thomas Berger to conduct a public inquiry into the proposed pipeline.

In his report, Berger recommended delaying the pipeline until government had settled aboriginal land claims along the route.³ In time, Canada signed treaties with the Inuvialuit, who retained ownership to 91,000 square kilometers of the Western Arctic in 1984; the Gwich’in in the Mackenzie Delta (22,332 square kilometers and \$75 million) in 1992; the Sahtu Dene and Métis (41,437 square kilometres and \$75 million) in 1993; and the Tlicho (39,000 square kilometers and \$152 million) in 2003.

As with the Yukon, the NWT government devolution pushed the federal government to devolve “provincial” programs to the territorial government. But for a territory emboldened by energy riches and diamonds, negotiations to transfer control of minerals and resource revenues have bogged down over a matter of high principle... money.

The recognition of “existing” Aboriginal rights in the 1982 constitutional amendments had made Northerners proud to call themselves Canadians, and the two territorial governments willingly contributed to the work of defining those Aboriginal rights. Then, in 1987, just as territorial residents began to contemplate their futures as provinces and full partnership in Confederation, there appeared a rude surprise in the shape of the Meech Lake Accord. The Accord required, for the first time, unanimous provincial approval for the creation of new provinces. Ever since, the territories’ constitutional future seemed cloudy.

Yet, with the end of the Cold War, there were suddenly openings to the east and west. For Northerners who feared being frozen out of Confederation by hidden federal and provincial agendas, the prospect of warm friendships with circumpolar neighbours offered comforting new relationships. Numerous regional organizations emerged to give expression to this interest.

The Inuit Circumpolar Conference reconnected communities in Alaska, Canada, Greenland and Russia. The Gwich'in in Alaska, NWT and Yukon found common cause in protecting the Porcupine Caribou herd. A NWT contractor built an entire town in Russia and Russians taught the NWT how to build better ice bridges.⁴ The Northern Forum convened meetings of regional government leaders from around the circumpolar north. Territorial education ministers sat at conference tables in Kiruna and Oslo with ministers from the Nordic nations and regional governments from the Arctic and sub-arctic forming the Northern Forum at Anchorage in 1991. Northern colleges created a virtual educational entity, the University of the Arctic. Eight nation states created the Arctic Council, and for the first time an international body invited northern Aboriginal organizations to become permanent participants. These emerging institutions still seem rich with potential.

3. Nunavut

Treaties negotiated with aboriginal groups in the northern territories over the last three decades represent significant nation-building achievements for Canada, yet they are instruments of imperfect reconciliation for the aboriginal and settler communities in the region. To expedite Quebec Hydro's massive hydroelectric power project, it negotiated the James Bay and Northern Quebec Agreement in just two years. Other northern treaties typically took twenty years of tiring talks. This endless talking led some observers to question whether Ottawa's policy objective was treaty settlements or just treaty negotiations, reconciliation in final agreements or merely constructive engagement.⁵

Nevertheless, all northern treaties incorporate the value of sustainability and respect for traditional knowledge. Moreover, a treaty can achieve something quite remarkable. Canada's accord with the Inuit who live above the tree line in the eastern Arctic is the largest treaty settlement ever made with indigenous peoples anywhere. Inspired no doubt by the advent of home rule for their Greenlandic neighbours in 1979, the Inuit used their treaty to establish a new jurisdiction, the Nunavut Territory. For the first time

in the history of the Americas, colonial authorities allowed a regional government to be established in an area with an indigenous majority. The Inuit, who make up 85 per cent of Nunavut's population, hold title to 350,000 square kilometers of land or 20 per cent of the territory.

Although the treaty embodies constitutional commitments from the national government to the Inuit, Canada has not fully implemented it, and the Inuit are suing the government (Fraser 2003).⁶ The United Nations Special Rapporteur on treaties concluded in 1999 that while treaties are honourable instruments with a long history, the greatest disappointment for the indigenous parties has been the consistent failure of settler governments to faithfully implement what had been negotiated (Martinez 1999).⁷ Almost every Aboriginal party to the northern treaties has complaints about the federal failure to fairly and fully implement the provisions of their signed agreements. The Inuit have attempted to invoke the arbitration provision of the Nunavut treaty numerous times but have been rebuffed by Ottawa. This failure has implications for devolution negotiations.

The greatest disappointment for the indigenous parties has been the consistent failure of settler governments to faithfully implement what had been negotiated

Ironically, arctic warming – caused by the human hunger for scarce energy resources – is fueling a new southern rush to tap the oil and gas buried beneath northern lands and waters. Climate change is opening up previously inaccessible areas for exploitation, at the same time exposing Arctic communities to greater risk of environmental degradation.

In recent summers, more arctic ice has melted than the previous winter had frozen. In the summer of 2007, way ahead of scientific projections, the ice cap turned into open water. Northerners saw the effects of this climatic change in the behaviour of wildlife populations, the undermining of communities and the overheated political rhetoric accompanying various challenges to Canada's Arctic sovereignty.

The world's media have turned their cameras onto imperiled polar bears,⁸ but many in the North wish that journalists would focus more on the impacts of climate change on the human beings of the area. On and off shore both, oil exploration could disrupt caribou migrations and therefore traditional ways of life.

Pacific salmon are appearing in arctic char streams like the Firth River. Coastal communities are at serious risk as warmer waters erode the shore ice that once functioned as a natural breakwater against the pounding waves of winter storms. From Alaska to Nunavut, ongoing erosion threatens coastal infrastructure, marine economy and Inuit cultures. In other locations, melting permafrost has destabilized buildings and made long-standing communities unsustainable. Forced relocation could turn their inhabitants into “climate refugees” (Matthiessen 2007).⁹

Though they have contributed very little to global warming, arctic residents are among the earliest victims of climate change. Although they may receive little in the way of benefits from the extraction of energy riches from their homelands, faulty public policy choices could saddle them with a ruined environment, uprooted communities and extreme cultural alienation. Of the 21 communities in Nunavut, 20 are on the coast. The Inuit are a coastal people. They lived on and from the sea ice, believe they know best how to protect their lands and are the people who are most entitled to share in the riches beneath the Arctic ice. For both environmental and economic reasons, the people of Nunavut naturally seek “provincial” control of these resources.

Nunavut’s lands and waters hold 10 to 23 per cent of Canada’s oil reserves and between 16 and 35 per cent of its natural gas reserves. Citing the Geological Survey of Canada, the Nunavut Government values reserves in the Sverdrup Basin at over a trillion dollars.¹⁰ Inuit management of oil and gas resource revenues would spur the development of Nunavut’s private sector and give the territory’s children and grandchildren access to private sector employment and business opportunities. Indeed, this is Nunavut’s best hope for prosperity beyond the days of federal transfers and federal dependency. Nunavummiut (the citizens of Nunavut) do not want to be clerks of a federal storehouse; they want to own the store.

In the interests of economic justice, environmental sanity and Canadian sovereignty, it would make strategic sense to devolve responsibility for mineral and energy resources to northern governments. In the simplest of terms, Nunavut, NWT and the Yukon territories seek the powers that provinces enjoy. They want control – jurisdiction and management – of the natural resources beneath the lands and waters within their political boundaries. Only this kind of control will win them a major share of the revenues that flow from their development.

Before becoming Prime Minister, Stephen Harper promised that the northern territories would be the primary beneficiaries of northern natural resource reve-

nues in any devolution deal with a Conservative government. Inuit note that Denmark has recently concluded a natural resource-revenue sharing deal with Greenland.¹¹ Canada has yet to close a deal with the NWT and has barely started negotiations in Nunavut.

For Nunavut, the 1993 land claims settlement was the first step towards what some Northerners called “decolonization.”¹² The second step was the creation of the territorial government in 1999. Devolution should be the third step. Doug McArthur thinks these processes amount to a bottom-up constitutional settlement that is unique to Canada’s territorial north.¹³ I would add only that this settlement was made possible by fog-bound federal policies (Penikett 2007).¹⁴

For Nunavut, the 1993 land claims settlement was the first step towards what some Northerners called “decolonization.”

4. Security and sovereignty

Last September, scientists confirmed that Arctic sea ice had shrunk to the smallest area ever recorded. At least three northern neighbours have recently challenged Canada’s sovereignty in the Arctic. In pursuit of questionable claims to Arctic resource wealth, a Russian submarine planted a titanium flag on the ocean floor under the North Pole that same summer. With the Northwest Passage potentially open to summer shipping, Canada finds itself unable to even monitor traffic through those straits. Nunavut encompasses two-thirds of Canada’s coastline, but it has no active harbour. In fact, this country is the only Arctic nation without an active deep-water port to access the northern seas.

Arctic residents might sleep more peacefully were Canada to fully exercise its sovereignty and jurisdiction over the waters of the Canadian Arctic Archipelago. A key component of that exercise would involve the faithful implementation of the Nunavut Land Claims Agreement (NLCA). NLCA provisions not yet implemented, such as the Nunavut Marine Council, would assure Inuit that muscular environmental and safety regimes did apply to ships navigating the Northwest Passage. Regional land-use plans required by the Nunavut treaty need federal cabinet approval but they should influence seasonal shipping regulations.¹⁵

When Americans sailed the Polar Sea through the Northwest Passage in 1985, the protestors dropped leaflets onto the vessel from a chartered aircraft.¹⁶ In re-

sponse to the Polar Sea challenge, Canada redrew its boundaries in 1986 to enclose the Arctic Archipelago and its internal waters.¹⁷

Few Canadians realize how firmly Canada bases its Arctic sovereignty claims on thousands of years of Inuit occupancy and use of Arctic lands, waters and sea ice.¹⁸ Inuit land and water use studies published in 1977 documented their continuous utilization of 3.8 million square kilometers of land and ocean, including the eastern portion of the Northwest Passage – the area the United States views as an “international strait” (Fenge 2007). However, Canada’s Prime Minister has yet to discover the wisdom of invoking the Nunavut Land Claims Agreement to defend our Arctic sovereignty.

On behalf of the Nunavut Government’s devolution negotiators, Dr. Suzanne Lalonde, Professor of International Law at the Université de Montréal, has studied the potential effects that devolution of legislative jurisdiction to the Government of Nunavut over both land and marine bed resources within the Territory of Nunavut might have on the international validity to Canada’s claim to sovereignty over the Arctic waters. Lalonde concludes that the devolution of broad resource-management responsibilities over both land and marine bed resources to the Government of Nunavut would be a clear act of effective governance on the part of the national government. It would allow Canadian entities, in conjunction with local institutions, to exercise, manage, and most importantly, to be seen to exercise and manage sustained jurisdiction throughout the marine areas within the Arctic Archipelago. Through devolution of legislative jurisdiction over the land and marine bed resources within Nunavut boundaries to the Government of Nunavut, Canada can strengthen its claim to sovereignty:

[D]evolution might not only consolidate Canada’s position but might also strengthen its legal claim. For Inuit participation in the management and exploitation of land and marine bed resources within the Territory of Nunavut would reinforce Canada’s claim that its title over the Arctic waters enclosed by its straight baselines has been consolidated, and more importantly, that these waters are historic Canadian internal waters (Lalonde 2008).¹⁹

As Mary Simon has said, “Sovereignty begins at home.”²⁰ Obviously, Canada has no ability or inclination to fight wars with the USA over the Northwest Passage anymore than we’d invade Denmark over the Hans Island contretemps. However, we have good reasons to assert our sovereignty in these waters. Lalonde

concludes that, over more than a hundred year period, there have only been 69 transits of the Northwest Passage. All of the foreign vessels obtained Canada’s prior authorization. The only exception was the Polar Sea in 1985, which sailed through the Passage under an informal agreement to disagree. Therefore, the Northwest Passage does not fulfill the criteria that define an international strait. Still, Canada has to effectively exercise its sovereignty over the waters and prevent non-consensual voyages.

In political terms, the Arctic is in a period of major transformation. In the face of ongoing Arctic border and resource disputes, promoting Canadian interests and values will require interaction with all our northern neighbours. Federal, territorial and Aboriginal cooperation could help Canada secure an international treaty to protect the arctic environment – especially if that treaty guaranteed international acceptance of high standards for energy exploration and development, along with a mandated role for Arctic communities in social and environmental impact monitoring (Griffiths 2007).²¹ Admittedly, this is a big “if.”

A few months back, I was in Old Crow, the most northerly of Canada’s First Nation communities, with a leading Conservative politician. On hearing that, as a result of their Yukon treaty, this village now has millions invested in an airline and other businesses, the politician asked why would Canada underwrite this kind of prosperity for a tiny Arctic community. I pointed west to Alaska and noted that, just across that border the US government supported a military presence of 24,000 personnel. In the Yukon, there is a permanent military establishment of just two soldiers. To the limited extent that Canada can provide human security or protect its sovereignty in the Arctic, perhaps, it will be in helping to build viable northern communities.

Tony Penikett is the author of Reconciliation: First Nations Treaty Making, (Douglas & McIntyre, 2006). Penikett was active in Yukon politics from 1970 until 1995. In 1972, he served as campaign manager for Wally Firth, the first northern indigenous MP from the NWT. Currently, he is Chief Negotiator for the Nunavut Government in oil, gas and mineral devolution negotiations with the federal government.

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- 13 Douglas MacArthur "The changing architecture of government in Northern Canada west of Nunavut." Northern Exposure conference, Montebello, Ontario, October 26, 2007.
- 14 Tony Penikett, "A Fog Hangs over Arctic Waters." IRPP (forthcoming), 2008
- 15 North Baffin Region Land Use Plan, CHAPTER 3 3.5.1 The Nunavut Marine Council should address the need for regional Inuit shipping advisory committees and an improved communications system to reduce interference with people and wildlife. It should encourage the use of Inuit monitors on board any ship travelling through the region. [REC] 3.5.2 The CCG shall meet with the Nunavut Marine Council prior to the shipping season to exchange information about ship movements and community concerns. [A] [A] ... 3.5.10 While ensuring the respect of applicable Canadian international obligations in the region, the NPC shall implement the concept of a transportation and/or communications "corridor" as a land use policy having general application, and applying to land and water routes throughout the region, based on the processes outlined in Appendices J and K.
- 16 Steve Penikett in private conversation with the author, January 29, 2008.
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- 18 In the 1950s, the Canadian Government relocated Inuit from the Ungava region of Quebec, including a family associated with the

celebrated film *Nanook of the North*. In defense of Canadian sovereignty, the Inuit were shipped north to populate Ellesmere Island, where there was little fish or game.

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Arctic Sovereignty and the Nunavut Land Claims Agreement

Udloriak Hanson

Senior Policy Liaison

Nunavut Tunngavik Inc.

Good afternoon. My name is Udloriak Hanson. I am Inuit, born and raised in Iqaluit, NU. I have two undergraduate degrees, one in Business and the other in Education, but I have to admit that when it comes to climate change – the only thing I really understand about it is the human side.

I am participating in this conference and on this panel on behalf of Nunavut Tunngavik Inc. - or NTI - the Inuit organization responsible for implementing the 1993 Nunavut Land Claims Agreement.

I want to thank the organizers for the invitation to be here and a big thank you to Tony Penikett – our northern friend. I would also like to recognize Bernie Funston who, like me, was born “North of 60.”

Security and sovereignty in the Arctic – the topic of this conference – are very important to Inuit. It is not difficult to see why. Eighty-five per cent of the people who live in Nunavut are Inuit, and if things go wrong, we are directly affected. So, I will try to give you a beneficiary’s point of view on Arctic sovereignty and the Nunavut Land Claims Agreement, and then answer any questions you may have.

As we are talking about sovereignty, I want to begin by saying that Inuit are proud Canadians. We have been establishing and asserting Canada’s Arctic sovereignty for many years. In the 1950s some Inuit families from Nunavik, Northern Quebec, were relocated to the High Arctic Islands (Grise Fiord and Resolute Bay). It has been debated why this relocation took place, but many believe it was to firm up Canada’s Arctic sovereignty. Whether or not that was the main purpose, it did certainly build Canada’s presence in the High Arctic.

Prime Minister Harper has toured all three territories delivering important speeches on Arctic sovereignty and northern energy and mineral development. We appreciate his personal attention to our region.

Many Inuit were surprised – pleasantly surprised – when the Arctic featured so prominently in last fall’s Speech from the Throne. We applauded the Government of Canada’s commitment to asserting Canada’s Arctic sovereignty through new ice-strengthened patrol vessels, icebreakers, a deep water port at Nanisivik (near Arctic Bay on the north end of Baffin Island), and by strengthening the Inuit Rangers.

Inuit want to help the Government of Canada assert and affirm Canada’s Arctic sovereignty. We are

not sure, however, whether the Government of Canada wants our help; let me explain.

Following more than 20 years of negotiations, the Inuit of Nunavut and the Parliament of Canada ratified the Nunavut Land Claims Agreement. The rights defined in it are protected by Canada’s constitution. The territory of Nunavut and the Government of Nunavut were created as a result of this Agreement.

You may be surprised to learn that Arctic sovereignty and the Nunavut Agreement are glued together. In 1993, Inuit voted to cede to Canada their aboriginal title to land and ocean in exchange for defined rights and benefits, and here I am going to quote the agreement, “...in recognition of the contributions of Inuit to Canada’s history, identity and sovereignty in the Arctic.”

The parties to the Agreement wanted this language included because Inuit had documented historical and contemporary use and occupancy of much of Lancaster Sound and Barrow Strait; the eastern part of the Northwest Passage that the Americans and the European Union claim to be an international strait. Inuit trace their use and occupancy in this region back thousands of years through Thule, Dorset and Pre-Dorset peoples.

The Nunavut Agreement is long, complex and detailed. The Agreement has many articles that support Canada’s Arctic sovereignty. The problem is that the Government of Canada is not using them. Let me give you two specific examples.

Article 12 of the Agreement requires government, in co-operation with the Nunavut Planning Commission, to develop a plan to monitor Nunavut’s natural environment. What better tool to assert sovereignty than a General Monitoring Plan managed by its respective land users and occupants? Yet, more than 15 years after the Agreement was ratified, this Article remains unimplemented.

Article 15 provides for the establishment of a Nunavut Marine Council. Essentially this would be an institution to bring together governments and Inuit organizations to focus on the offshore. It has never been set up. By its very existence, the Nunavut Marine Council would help demonstrate that the Arctic offshore is part and parcel of Canada and is treated as such.

Nunavut Tunngavik Inc. has for years been trying to get the Government of Canada to fully implement the Nunavut Agreement. Other aboriginal peoples with modern treaties covering the North report similar problems. The Auditor General of Canada has reviewed implementation of the Nunavut, Gwich’in and Inuvialuit Agreements and has independently found that these agreements are not being fully implemented.

Following years of inconclusive negotiations, discussions and a conciliation process, NTI launched a court case in December 2006 over the Government of

Canada's failure to implement the Nunavut Agreement, including those parts of Articles 12 and 15 that I have mentioned. You may have a look at the *Statement of Claim* posted on our web site (www.tunnngavik.com/english/publications.php).

The Nunavut Agreement was negotiated by a sovereign state with an Aboriginal people, and by negotiating it, and defining a land claims settlement area which includes both land and marine areas, the Government of Canada acted consistently with the sovereign status that it asserts. But the Nunavut Agreement is not simply symbolic. It is not just a demonstration on paper. Its provisions must be carried out, and by carrying out, in full, the terms of this Agreement, the Government of Canada will be acting in a way that is consistent with its status as a signatory to this Agreement and demonstrating in practice, its sovereignty in the North.

Besides fully implementing the Nunavut Agreement, there are two ways in which the Government of Canada could effectively move forward in affirming sovereignty. First it should engage Inuit. In February 2006 the President of NITI wrote a six-page letter to the Prime Minister inviting him to use the Nunavut Agreement as part of a sovereignty assertion strategy and suggesting how the Agreement could help. Our initiative does not seem to have had much impact.

Some decisions have been taken by the Government of Canada that actually weaken our ability to affirm Arctic sovereignty.

In July 2007, the Prime Minister announced his government's commitment to Arctic patrol ships and a deepwater port at Nanisivik. In addition, he said:

Canada has a choice when it comes to defending our sovereignty over the Arctic. We either use it or lose it. And make no mistake; this Government intends to use it.

This statement is based on a false assumption: that Canada was not or, is not, "using" Arctic land and waters. This is simply wrong. Inuit have lived and travelled in the Arctic for thousands of years.

Last year, the Government of Canada voted along with only three other states – the US, Australia and New Zealand – against the United Nations Declaration on the Rights of Indigenous Peoples. The new Australian government has changed its position and indicated that it will advise the UN General Assembly of its support for the Declaration.

Surely, since Inuit use and occupancy are recognized in the Nunavut Agreement as supporting Canadian sovereignty, the Government of Canada should promote international acceptance and international legal recognition of such rights, including through the UN Declaration on the Rights of Indigenous Peoples.

Second, the Government of Canada is taking a narrow view of what sovereignty means and what needs to be done to affirm it. The rebuilding and redeployment of the military in the North should be one part of the strategy, but not the whole strategy. Asserting Arctic sovereignty requires a comprehensive strategy involving various departments of the Government of Canada.

Some decisions have been taken by the Government of Canada that actually weaken our ability to affirm Arctic sovereignty. In 2006, the Government of Canada disbanded the Office of the Arctic Ambassador, whose mandate was to persuade others to Canada's view of Arctic sovereignty. As well, the Northern Dimension of Canada's Foreign Policy, adopted in 2000 for five years, in part to assert Canada's Arctic sovereignty, has lapsed. There is no sign that it is to be renewed.

Mary Simon, the President of Inuit Tapiriit Kanatami (ITK), has been travelling the country in recent months speaking about Arctic sovereignty and engaging Canadians on this national issue. She makes the case that "sovereignty begins at home." Investing in people and communities, as well as military infrastructure is ultimately the best means of expressing sovereignty. In early 2007, ITK submitted to the Government of Canada a well thought out Inuit Action Plan, which included measures to assert Arctic sovereignty.

I mentioned earlier the encouraging fall 2007 Speech from the Throne. Well, this speech included a commitment to develop an integrated Northern Strategy to include sovereignty and security. The Government of Canada has yet to ask the Inuit of Nunavut to talk about the Northern Strategy or to respond to the Inuit Action Plan.

Inuit have been called the flagpoles of the North. It is not a flattering term, but the British and later Canadian presence in the Arctic has been built on the fact that this region is our homeland. This was documented in our land use and occupancy study, published in 1977. It was also recognized when the baselines around the Arctic Archipelago were drawn in 1986, and is explicitly stated in the Land Claims Agreement.

But recognition of this reality has come piecemeal. It is actually to the benefit of Canada to focus on this reality and act in accordance with it on a long-term, consistent basis.

The Arctic has been the Inuit homeland for millennia and will continue to be so long after this debate has passed.

Not That Good a Fit? "Human Security" and the Arctic

Franklyn Griffiths

Professor Emeritus (Political Science) University of Toronto

While at a gathering of the Inuit Circumpolar Conference in Iqaluit quite a few years ago, I wandered into the primary school there and saw samples of fabric stuck on a classroom wall. Among them was a fine piece of taffeta. Think about it, taffeta in Iqaluit. Education being what it is, we could pronounce in favour of instruction in the elements of European couture in any school anywhere. Still, this was the Northwest Territories, before Nunavut came into existence. Taffeta fitted into a curriculum that could only have been devised in a remote southern center of learning. What makes sense down south may be quite out of place in the Arctic. The question I ask is whether, in meeting the needs of Northerners whom we southerners would like to help, the advocacy of "human security" might also be misplaced. I am inclined to believe it is. In exploring the matter, I first consider the notion of human security, where it comes from, how it differs from other conceptions of security, and what it draws our attention to. Then we look north, specifically to Inuit Canada, for a sense of how fruitful its application might be in Arctic circumstances. I end with a glance at alternatives to human security.

Human Security and Its Disabilities

Meanings of the term "security" have long been contested and it's out of the contest that human security, itself contested, began to emerge in Canada in the late 1990s. Security may be regarded as a condition, a feeling, of being without great fear and danger to the self and to things of very considerable value to the self. Security can also be, and more often is understood to be, an objective situation in which the self has the wherewithal to deal with threats of severe deprivation that stem principally from the interests and passions of others. Not necessarily, but by and large, security is selfish. As a way of thinking it is personal, othering, and not well suited to the discussion of impersonal forces in whose working the self is directly implicated. It has other attributes as well.

For one thing, and as others have noted, the term connotes a state of emergency in which apprehended threats are such as to require prompt and if necessary, sustained extraordinary action. This is action that takes precedence over responses not only to other threats, but to wants and desires that, however severe, are taken to be chronic. Talk of security therefore orients us primarily to threats as they present themselves here and now. It moves us to consider and act on

what's immediately before us. It inhibits transformative discourses and practices. Nor does it facilitate attention, either to threats with a long time for presentation, or to conditions that might give rise to such threats. It keys us to point sources as distinct from contexts that produce pointed threats. All the while, in societies where many causes compete for public, official, and budgetary attention, the "security" label can be a marketing tool of some value. Attaching urgency to a particular set of countermeasures to a particular threat, those who use the label may well sway others to grant priority to a favoured undertaking. They may also mislead with exaggerated threat assessments. Security talk is generally to be taken with a grain of salt.

In the domain of international affairs and foreign relations, a discourse of security has also privileged the state. Other possible "referent objects" – civil society, the family, the individual, religions, cultures, diasporas, international regions, and so on – were long denied standing in a view that saw the state as both the subject and the agent of national, international, and, by the turn of the twentieth century, collective security. Viewed this way, power was the currency of security, and the balancing of power was the way to achieve it insofar as preponderance was set aside. Security talk thus favoured not only the state, but an opposed-forces view of interaction among states. As such, it has served broadly as a counterpoint to thought and action for international cooperation outside of alliance relationships. Thus, when the Versailles settlement began to unravel in the early 1930s, the conversation in the League of Nations shifted quickly from negotiations for general and complete disarmament to a renewed emphasis on national and international security against aggression. It's a debatable proposition, but it seems to me that after 1945, a statist discourse of national and collective security stood squarely in the way of transnational efforts for disarmament and abolition, if not for arms control as well. In short, the intellectual and policy milieu in which discourses of security have prevailed is conservative. It may be possible in principle to take away from the state by substituting another referent object for it. However, the continuing need to rely upon the state as the main means or agent in ensuring the security of an alternative referent object, risks making any new security project a conservative one in practice. It's hard to break fully free of one's origins.

Finally, on the matter of background, human security arises from a discursive tradition that privileges military threats and dangers of physical violence arising from opposed political interests. To be sure, non-military foreign threats – relating, for example, to eco-

conomic competition, technological development, or intelligence gathering – were “securitized,” which is to say made subjects of security in centuries past. Nor should we minimize what might be termed the civil dimensions of security practice after 1945. The Soviet Union, a Marxian polity, operated with a conception of the world correlation of forces that included regime change by the “parliamentary path”. The United States, following the launch of Sputnik, securitized national education and scientific research, strategic-materials supply, and even the Soviet grain harvest. As to Canada, it was proud to take credit for Article 2 of the NATO treaty, which cast the alliance’s security in economic and social terms. We also championed civil security causes and fora, for example the Conference on Security and Cooperation in Europe, at which we could have a respected place at the table so as to offset US influence on Canada’s world presence. But still, the discourse of security was heavily militarized following World War II. Pride of place was given to military capabilities, vigilance, and preparedness in the event of crisis. Consistent with the primacy of the state among states as referent object, the threat of armed conflict was uppermost in the calculus of national and international security. It remained so until the end of the Cold War.

What makes sense down south may be quite out of place in the Arctic.

As the East-West conflict waned, intensified, and then came to an abrupt end between 1972 and 1992, new conceptions of security were brought into play. “Common security,” articulated in the Palme Commission Report of 1982, was followed by the less influential notion of “cooperative security,” presented in a volume by the Brookings Institution in 1994. Both common and cooperative security held to a statist perspective on the dangers of armed conflict, but drew attention to opportunities for civil as well as military collaboration among actual and potential adversaries. As a new world order beckoned, the door was opening to extended conceptions of security. By the late 1990s and early 2000s, the opening was wide enough to admit cultural, demographic, energy, environmental, food, societal, and even ontological security. The dimensions of security were very substantially extended. Just how these many dimensions might be understood in terms of cause and effect remained, and remains, an open question. Nor was it clear how they

might assist in the design of effective collective action. Nevertheless, the climate was one that favoured extended notions of security, which is to say the demilitarization of the concept. Different sets of promoters made free use of security rhetoric to advance their particular projects. For others, the world was, and is, a better place when the number and severity of security issues and threats are *lessening*, not increasing. Still, the desire to widen the ambit of security discourse prevailed as the 20th century drew to a close. Enter human security.

The single contribution of human security talk is to add “deepening” to the extension of security. This it does by challenging the state as the prime referent object and by privileging the individual and peoples instead. Termed “sustainable human security” in its first statements by Canada’s Foreign Minister, Lloyd Axworthy (in September 1996 to the 51st General Assembly and in an address of April 1997), the new idea was presented as follows:

The recent series of UN conferences in New York, Rio, Vienna, Cairo, Copenhagen, Beijing and Istanbul have served both to define the concept of sustainable human security and to bring home the growing challenges to the security of the individual. The road map is clear; we do not need to study it any further.... Sustainable human security means providing basic needs in both economic and political ways; it means ensuring quality of life and equity; it means protection of fundamental human rights.

The basic premise behind “human security” is that human rights and fundamental freedoms, the rule of law, good governance and social equity, are as important to global peace as are arms control and disarmament. In other words, that security should be measured in terms of the ultimate outcome for individuals and peoples, rather than in terms of the number of arms control agreements signed.

Lloyd Axworthy was asking governments and analysts around the globe to see the world anew and to focus on the extended security of the individual. This was truly a radical move. In due course, however, the Canadian government would seem to have backtracked. In the view of some, it persists in defence of the individual, but now inclines to a restricted view of individual security. Embodied in the doctrine of “responsibility to protect,” the new view is seen to focus on situations of fear and to play down the denial of wants. Rather than seeking to secure human rights,

equity and good governance, it is concerned to protect the individual from state violence and violence caused by state failure. If so, human security, a contested practice, is itself being remilitarized in its country of origin.

It's one thing to declare the individual and, sometimes also, populations at large, to be the referent objects of security. It's another to show how the individual can be an effective agent against the threat and experience of fear, to say nothing of want. Beyond a point that's quickly reached, security is held in common or not at all. A discursive practice of human security must uncover common ground for effective action in the space between the individual and the state. Otherwise, it does not empower the individual it seeks to protect. Instead, it is likely to rely upon the state, which intervenes with its own ideas of what's required in Kosovo, Darfur, or Afghanistan. Not only is human security inclined to statism when it comes to agency, it also risks depriving the referent object of a voice in the process of threat assessment and agreement on what constitutes security in the first place. When the imperiled individual is incapable of an independent analysis of the situation and its requirements for collective action, and when a powerful other's interpretation of human security does not appeal to her, she is at the mercy of defenders who know what's best for her. Her would-be defenders may themselves become a threat to her security.

All of which is to suggest that the advocates of human security may have overshot the mark in counterposing the individual to the state as referent object. To be sure, "peoples" are frequently cited as referents in human-security discourse. But it's the individual who is to claim our attention. As to the choice between a restrictive and an expanded understanding of the concept, exponents of human security might well give greater emphasis to the enabling of referent individuals themselves to define what's happening and what needs doing. These things noted, let us look north.

The Canadian Inuit Arctic

The Arctic is vast, amounting by some calculations to roughly eight per cent of the Earth's surface. It is also a mediterranean, six times larger than the Med, surrounded by five littoral states – Canada, Denmark/Greenland, Norway, the Russian Federation, and the United States. Also included as regional states not fronting onto the Arctic Ocean are Finland, Sweden, and Iceland, this last being the sole Arctic country without an indigenous population. The region is sufficiently far-flung, populous (some four million, of which roughly half are in the Russian Federation),

and varied as to deny all but a poetic comprehension at the level of individual understanding. One solution is to focus on those in the region who are already most at risk, most vulnerable to deprivation, and most exposed to adversity from forces and decisions that come in from afar. By this token, we would take the Arctic indigenous peoples as our referent object. Even here, however, the indigenous peoples of the Arctic are sufficiently diverse in their lands and waters, culture and traditions, and well-being that a further tightening of focus is required.

Human security emerged as a liberal-democratic reaction to the conservative statist security practice of the Cold War.

I will therefore inquire whether and to what extent human security might provide a useful window onto the situation and the needs of Canada's Inuit, a population of about 45,000, who live for the most part above the tree line in small communities extending from Labrador on the east to the Mackenzie-Beaufort area on the west. Right away we are faced with the risk of voice appropriation in that human security is, to the best of my knowledge, not something that anybody is talking about anywhere in the Inuit Arctic of Canada. This being so, it is presumptuous for an outsider to infer how well a discursive practice of human security might meet their essential needs, and indeed, their wants as well. And there's another thing or two.

Human security emerged as a liberal-democratic reaction to the conservative statist security practice of the Cold War. As liberal democracies were experiencing few, if any, of the enormities cited in the new discourse, it was international and not inner-directed. The Arctic, however, consists of liberal-democratic countries, with the exception of the Russian Federation – an authoritarian democracy in which Northern existence is marked by greater deprivation, but no greater incidence of violence, than in other parts of the region. Accordingly, and as others have pointed out, a restrictive understanding of human security cannot readily be applied in the Arctic. Instead, we need to rely on the extended version. Furthermore, short of satisfying ourselves with crafting basic principles of good behaviour in the Arctic Council and other international forums, extended human security must become the goal of national governments in their *domestic* affairs if it is to mean anything much.

As far as I know, notions of human security have been applied to the domestic affairs of a liberal democracy only on two occasions. The first was by me in a discussion of the disposition of nuclear waste in the province of Ontario, this for the Nuclear Waste Management Organization in 2003. The second was in a brief response to my views by Lloyd Axworthy (both accessible at <http://www.nwmo.ca>, by going to "Background Papers" and then "Guiding Concepts"). Bringing human security home in southern Canada was a new idea. My thoughts on it were necessarily rudimentary. Now we're considering an application to the fears and needs, the life and quality of life, of Canada's Inuit; this is entirely new terrain. I continue at the risk of instructing in what's best for distant others.

As a practice, human security emerged in the midst of international campaigning marked by unusual alliances between the liberal-democratic state and civil society. There was thus a mobilizing quality to collective action for human security, for example in the international movement to ban land mines or to establish an international criminal court. In these ventures, the good offices and certain other resources of the state were directed to the purposes of a civil-society coalition, which broadly had the lead in the state-society partnership. Security for the individual and for populations at large arose from interaction among activist nationals on the ground, like-minded members of the media, national and international NGOs, and the civil society and state apparatus of the concerned liberal democracies. The approach was more "bottom-up" than "top-down". Those most directly at risk obtained a considerably larger voice than usual in the shaping of collective action. At the same time, as it originally emerged, the practice of human security was heavily dependent upon the existence of effective champions within the liberal-democratic state. In their absence, action for human security would likely be held to dogged networking of private citizens acting largely on their own, or of officials in pursuit of intergovernmental cooperation, without benefit of active civil-society participation. The question is, how might all or part of this be applied on behalf of Canada's Inuit, insofar as they represent those most at risk in the circumpolar North as an entirety. To keep things simple, let us distinguish between threats to life and to quality of life in Canadian Inuit lands.

Threats to life are central to a restrictive view of human security. They are to be found in Arctic Canada, principally in the extraordinarily high rate of suicide among young Inuit males in particular. No end of effort has gone into the understanding and prevention of these continuing tragedies. Might Inuit and their well-wishers elsewhere in Canada now achieve new suc-

cess by mounting a human security campaign to reduce the incidence of youth suicide? What would such a campaign look like? Beyond a certain point, would public campaigning be appropriate in dealing with such poignant matters? Maybe so, but my guess is that the phenomenon is structural and deeply rooted in the clash of tradition and modernity. It may not yield to campaigning. Nor may Inuit be ready to address it by means of a state-civil society partnership for human security. I could be quite wrong about this, but given the small size and far-flung distribution of the Inuit population in Arctic Canada, the very notion of civil society may, rather like taffeta, be out of place. If so, a human security effort against suicide would be dominated by territorial and federal governments. But what insights and what tools would a human-security approach give them that they do not already have?

Very real threats to life are also to be had in the consequences of climate change for marine and terrestrial animals, on which Inuit culture and identity depend. Inuit are all but uniform in their respect and care for animals. They are however divided in their understanding of, and response to, climate change. The deep apprehension of some is offset by widespread belief in the necessity and the ability of Inuit to adapt. Still others are mainly concerned to maintain a hunting way of life against the predations of modern living and see climate change as a southern-based distraction. All the while, climate change is difficult enough to understand without also framing it in the language of human security. Can Inuit be expected to lead the way in securitizing various species of Arctic wildlife as referent objects of human security in an era of climate change? Is human security the right way for them to frame their approach to the polar bear in particular? Actually, it might be in that some of the livelihood of small communities may depend significantly on the ability to sell hunting rights to southerners. But would Inuit hunters opt for a human-security communications strategy in making their case for the kill down south? Would their appeal be framed instead in terms of indigenous human rights? Quite out of my depth here, I find it difficult to predict an enthusiastic response to proposals to employ human security as a frame of reference and action when it comes to the animals on which the Inuit way of life depends.

Threats to life might also be attached to the rumoured activity of foreign nuclear submarines in Canadian Arctic waters, and, beyond this, to the potential for a remilitarization of the Arctic as climate change renders the region increasingly accessible. Inuit do not seem, however, to be greatly exercised by actual and potential foreign military activity, which in my limited experience rarely, if ever, pops up as a lead item in

conversation. Taking pride in the contribution of the Rangers to Canadian sovereignty and security, Inuit may also question Canadian defence spending on new Arctic hardware, when monies might better go to the maintenance of a vibrant Inuit society and effective Inuit occupancy of Canada's high Arctic spaces. Irrespective of whether a restrictive interpretation of human security is accepted by Inuit in the first place, military threats to life seem not to rank high in their scheme of things.

As to extended human security, threats to quality of life are abundant, and perceived as such. Indeed, while nominally concerned with other matters, the *Arctic Human Development Report* (AHDR), issued by the Arctic Council in 2004, is replete with human security issues for the region as a whole, Canada included. Rather than confine ourselves to the Arctic of Canada's Inuit, we might therefore ransack the AHDR for human-security material as it relates to quality of life. I prefer however, the immediacy of a particular people in a particular place. In Canada, the quality of Inuit life is seen by Inuit to be threatened by, among other things, cultural erosion and language loss, circumstances making for early dropout from school, climate change including its adverse effects on travel and the practice of a hunting way of life, long-range transport of pollutants into country food, the incursion of foreign fishing boats, marine pollution by commercial vessels operating with greater frequency in ice-reduced waters, substance abuse, grossly inadequate housing, economic underdevelopment and employment scarcity, and by southern environmental NGOs. There's obviously far more here than can be commented upon in any detail.

The potential does exist for extended human-security action in the Inuit situation as perceived by Inuit. But, again, why would Inuit frame their wants in terms of human security? The adoption of terminology and a framing regime that's new to them would require prior acceptance in the south. No way can Inuit be expected themselves to introduce and educate the southern majority on the merits of human security as a guide to collective action within Canada. As well, human security thinking would have to be preferred over existing ways of making the quality-of-life case to publics, politicians, and federal finance officials down south.

Up north as well as down south, many will have to stretch their imaginations to consider quality of life as a security matter. The stretch is not so great in Canada when Arctic sovereignty is taken to be the frame of reference. Although personally, I believe we Canadians should all but stop worrying about a sovereignty that's actually well in hand; Inuit can and do argue for southern support for improved housing and lan-

guage education as sovereignty contributions, as affirmations of effective Canadian Arctic occupancy. Meanwhile there are still other ways of framing the human needs of Inuit, for example in terms of the honour of the Crown in meeting its fiduciary responsibilities and land-claims commitments to indigenous peoples.

In sum, it's not appropriate to expect Inuit to take the lead in introducing a national discourse for human security in Arctic Canada. Nor, in my view, is it appropriate for others to try to mobilize them on behalf of an exogenous understanding of their own security. In any event, there is little scope for the application of restricted human security, and little comparative advantage in the application of extended human-security thinking by Inuit in the Canadian Arctic. As Canada's Inuit go, so goes the Arctic as a region. Unless I've missed a lot, the fit between human security and the Arctic is not good.

The term "community" also sums up the many and varied purposes of collective action for the good in Arctic conditions.

An Indigenous Alternative

It is difficult in the time and space available here to do greatly more than touch upon the alternatives. But touch we should if the discussion is not to be left in the negative. So, if "human security" is indeed wanting, what might the choices be for a more effective discursive practice? Some will say that risk has replaced security as the governing concept in modern life. Others will propose human rights, justice, equity, survival, sustainable development and, for that matter, human development. In my view, we are best off in the Arctic if we can minimize our reliance on imported intellectual frameworks. Better instead to ground thinking and practice in the Arctic itself. For this there is no better point of departure than the *Arctic Human Development Report*, which is critical of southern-based notions of human development. In their concluding remarks the lead authors say that:

...our study has directed attention to a distinction between two fundamentally different perspectives on human development. One approach – we may call it the western approach – starts with the individual and asks how individuals are faring in terms of any number of criteria like life expectancy, education, ma-

terial well-being, and so forth. An alternative approach – reflected in many indigenous cultures – starts with the community or the social group and views human development through the lens of community viability.

Following suit and going further, I suggest we take the referent object for life and quality of life in the Arctic to be neither the state, nor the individual, nor civil society, but the *community*, typically the remote small indigenous community which is embedded in the natural environment.

Characterizing the referent object, the term “community” also sums up the many and varied purposes of collective action for the good in Arctic conditions. It connotes order without law. This is order that’s based on shared norms or standards of behaviour that govern human relations and, especially in an Arctic setting, human relations with the world of nature. These are in essence, standards of respect and care for the other, be it familiar or foreign, human or in a state of nature. Not legislated, they arise in society as individuals discover and together hold onto what it takes to deal successfully with one another and with the world around. Expressed in southern language, which presumably has its indigenous Arctic equivalents, these are standards of embedded civility.

Likely to be seen as quaint from a non-Arctic perspective, the civilities of the circumpolar North have much to say to a wider world that’s being superheated by possessive individualism to a point where the human species may itself now be threatened. They tell us that it’s not the individual but the community, its viability, and its representatives that demand our attention down south as well as up north. How the small Arctic community is to be helped is, to put it mildly, hard to say at this point. Surely the best advice will come from the community itself. Some of it will focus on self-help, in contrast to help from the state. Some of it may assist in a reorientation from security to community in thinking and practice elsewhere in the world, especially in the requirement for civility in human relations with nature.

Considerations such as these are far removed from contemporary discourses of security. They are so far removed that many may leave them to others and continue carrying security as we’ve known it into the Arctic – a pity, because the global village has much to learn from as well as give to the small Arctic community.



NORTHERN LIGHTS AT YELLOWKNIFE, NWT, CANADA - PHOTO BY XANDER

An International Legal Regime for the Arctic

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Is there a legal regime for the Arctic? Or, is there a legal regime that is applicable to the Arctic, and if so, how far does that regime require further strengthening in view of contemporary developments?

What is important at the outset is to realize that in the Arctic, the issue is not with respect to territorial sovereignty; it is about exercise of certain sovereign rights there. The Arctic Ocean is like any other ocean. The present paper attempts to demonstrate that there is an existing binding legal regime established by the 1982 United Nations Convention on the Law of the Sea (hereinafter referred to as the "Convention"), and explains some of the contemporary developments in the implementation of the provisions of the Convention. Thereafter, the legal regime that is established for the Antarctic is revisited with a view to study how far that system is relevant to the Arctic, and what useful derivations can be made from there.

The Convention was opened for signature on 10 December 1982 in Montego Bay (Jamaica), and entered into force on 16 November 1994, 12 months after the date of deposit of the sixtieth instrument of ratification or accession. Today, with 154 States Parties to the Convention, which includes all the Arctic states except the United States, it provides the universal regime for all matters relating to ocean affairs and the Law of the Sea. It serves as the foundation for the development of regional and national ocean policies, as well as the development of related regional and international instruments. It is regarded as the "Constitution of the Oceans."

The Convention does not envisage any special regime for the Arctic. Thus in the Arctic ocean too, the areas beyond the limits of national jurisdiction are high seas with all the appurtenant freedoms of the high seas, namely navigation, overflight, laying of submarine cables and pipelines, construction of artificial installations, and conduct of scientific research. Such freedoms are already exercised in the Arctic Ocean.

Sovereignty and sovereign rights under the Convention

Under the 1982 United Nations Convention on the Law of the Sea, coastal states are entitled to territorial sea, contiguous zone, exclusive economic zone, and continental shelf, over which they have specific rights and jurisdiction. These zones have to be drawn from certain baselines, which include the low water line along

the coast (normal baselines) or straight or archipelagic baselines, defined by reference to lists of geographical coordinates of points. Waters on the landward side of the baseline are internal waters of the state or, in the case of archipelagic baselines, archipelagic waters.

From the baselines, every state has a right to establish a territorial sea not exceeding 12 nautical miles.¹ With certain exceptions related to navigation, the coastal states exercise complete sovereignty over the territorial sea, including its resources.

Coastal states can establish a contiguous zone not extending beyond 24 nautical miles beyond the baselines from which the territorial sea is measured. The rights over the contiguous zone extend to (a) prevention of infringement of customs, fiscal, immigration or sanitary laws and regulations within the territory or territorial sea and (b) for punishment of infringement of the above laws and regulations committed within the territory or territorial sea.² The Convention also provides that removal of archaeological and historical objects from the seabed in the contiguous zone of a coastal state, without its approval would result in an infringement within its territory or territorial sea of the laws and regulations referred to in article 33.³

The exclusive economic zone is a zone not extending beyond 200 nautical miles beyond the baselines from which the breadth of the territorial sea is measured.⁴ The exclusive economic zone is subject to a specific legal regime, according to which the coastal state has sovereign rights for the purposes of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the superjacent waters, as well as of the seabed and subsoil. In addition, the coastal state has jurisdiction with regards to the establishment and use of artificial islands, installations and structures, marine scientific research, protection and preservation of the marine environment.⁵ In the context of the Arctic, mention must be made of one important provision: Article 234 of the Convention grants special regulatory and enforcement rights to coastal states in ice-covered areas to reduce and control vessel source pollution within the limits of the exclusive economic zone. This provision does represent an exception to the general rule of flag-state enforcement of the regulations governing vessel-source pollution. Under this Article, coastal states have the right to adopt and to enforce non-discriminatory laws and regulations for the prevention, reduction, and control of marine pollution in their respective exclusive economic zones.

Of particular significance are the continental shelf and its delineation. The continental shelf of a coastal state comprises the seabed and subsoil of the submarine areas that extend beyond its territorial sea

throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend to that distance.⁶ The continental margin comprises the submerged prolongation of the landmass of the coastal state. It consists of the seabed and subsoil of the shelf, the slope and the rise,⁷ but does not include the deep ocean floor with its oceanic ridges or the subsoil thereof. While the geological continental shelf may extend up to the outer edge of the continental margin, the Convention prescribes certain criteria for the establishment of the outer limits where it extends beyond 200 nautical miles, and constrains it to limit to either 350 nautical miles from the baselines from which the territorial sea is measured, or to 100 nautical miles from the 2500 metres isobath, which is a line connecting the depth of 2500 metres.⁸ In other words, where the continental margin extends up to 200 nautical miles, or is less, the outer limits of the continental shelf coincides with the exclusive economic zone.

The coastal state exercises over the continental shelf sovereign rights for the purpose of exploring and exploiting its natural resources.⁹ The rights of the coastal states in respect of the continental shelf are exclusive; if the coastal state does not explore the continental shelf or exploit its natural resources, no one else may undertake these activities without the express consent of the coastal state.¹⁰ The rights of the coastal state over the continental shelf do not affect the legal status of the superjacent waters, or of the air space above those waters.¹¹

Delineation of the continental shelf beyond 200 nautical miles:

Where a coastal state intends to establish the outer limits of its continental shelf beyond 200 nautical miles, it has to do so in accordance with the Article 76(4). This Article provides the formula for the delineation of the outer limits of the continental shelf where it extends beyond 200 nautical miles. There are two formulae which reference either the thickness of the sedimentary rocks from the foot of the slope, the distance of 60 nautical miles from the foot of the slope. Thereafter, Article 76, paragraph 5 determines the cut-off points for the delineation, known as constraints. There are two constraints, viz. either a distance of 350 nautical miles from the baselines from which the breadth of the territorial sea is measured, or to a distance of 100 nautical miles from the 2500 isobath. Article 76, paragraph 8 provides that the information on the limits of the continental shelf beyond 200 nautical miles from

the baselines, from which the breadth of the territorial sea is measured, shall be submitted to the Commission on the Limits of the Continental Shelf set up under Annex II of the Convention. The information referred to in paragraph 8 of Article 76 refers to supporting scientific and technical data.¹² After examination of such scientific and technical data, the Commission shall make recommendations to coastal states on matters related to the establishment of the outer limits of the continental shelf.

In accordance with rule 53 of the rules of procedure, the Commission shall transmit to the Secretariat at two copies of the recommendations, one to be submitted to the coastal state, and the other to remain in the custody of the Secretary-General. The limits of the shelf established by a coastal state on the basis of these recommendations shall be final and binding.¹³

Coastal states are entitled to territorial sea, contiguous zone, exclusive economic zone, and continental shelf over which they have specific rights and jurisdiction.

In the context of the Arctic, two Arctic states have made submissions to the Commission. The Russian Federation was the very first country to make a submission to the Commission. The Russian submission concerned four areas, among them the Central Arctic Ocean. Having examined the data and information submitted by the coastal state, the Commission made recommendations in respect of the four areas relating to the continental shelf extending beyond 200 nautical miles contained in the submission: the Barents Sea, the Bering Sea, the Sea of Okhotsk and the Central Arctic Ocean.¹⁴

In the case of the Barents and Bering seas, the Commission recommended to the Russian Federation, upon entry into force of the maritime boundary delimitation agreements with Norway in the Barents Sea, and with the United States of America in the Bering Sea, to transmit to the Commission the charts and coordinates of the delimitation lines. These would represent the outer limits of the continental shelf of the Russian Federation, extending beyond 200 nautical miles in the Barents Sea and the Bering Sea respectively.

Regarding the Sea of Okhotsk, the Commission recommended to the Russian Federation to make a well-documented partial submission for its extended continental shelf in the northern part of that sea. The Commission stated that this partial submission shall

not prejudice questions relating to the delimitation of boundaries between states in the south for which a submission might subsequently be made, notwithstanding the provisions regarding the 10-year time limit established by Article 4 of Annex II to the Convention. In order to make this partial submission, the Commission also recommended to the Russian Federation to make its best efforts to effect an agreement with Japan, in accordance with paragraph 4 of annex I to the Rules of Procedure of the Commission.

As regards the Central Arctic Ocean, the Commission recommended that the Russian Federation make a revised submission respecting its extended continental shelf in that area, based on the findings contained in the recommendations. At the seventeenth Meeting of States Parties held in June 2007, the Russian Federation stated that it intended to submit to the Commission additional information.¹⁵

The coastal state exercises over the continental shelf sovereign rights for the purpose of exploring and exploiting its natural resources.

Norwegian Submission

On 27 November 2006, Norway submitted to the Commission on the Limits of the Continental Shelf, in accordance with Article 76, paragraph 8 of the United Nations Convention on the Law of the Sea, information on the limits of the continental shelf beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured for three separate areas. These include the North-East Atlantic and the Arctic; the Loop Hole in the Barents Sea; the Western Nansen Basin in the Arctic Ocean; and the Banana Hole in the Norwegian Sea. According to the submitting state, the submission deals only with the outer limits of the continental shelf in those three areas, and that a further submission may be made in respect of other areas. This submission is presently under consideration by the Commission.

With respect to the Norwegian submission, Denmark¹⁶ and Iceland,¹⁷ referring to the Agreed Minutes¹⁸, notified the Secretary-General of the United Nations that they do not object to the Commission considering the documentation and making recommendations on this basis, without prejudice to the submission of documentation by these states at a later stage, or to

the question of bilateral delimitations of the continental shelf between the three states. It was also reiterated that according to the Convention to which both Iceland and Norway are Parties, including Annex II and the Rules of Procedure of the Commission, in particular Annex I thereto, the actions of the Commission shall not prejudice matters relating to delimitation of boundaries between states with opposite or adjacent coasts.

The Russian Federation¹⁹ communicated that the delimitation of the continental shelf between the Russian Federation and Norway had not yet been settled; that the unresolved delimitation issue in the Barents Sea is therefore to be considered as a "maritime dispute" for the purposes of rule 5(a) of Annex I to the Rules of Procedure of the Commission. Accordingly, any action by the Commission shall not prejudice matters relating to the delimitation of the continental shelf between Norway and the Russian Federation. It was also stated that the Commission already considered this issue while examining the submission made by the Russian Federation, and had recommended to the Russian Federation, that upon entry into force of the maritime boundary delimitation agreement with Norway, to transmit to the Commission charts and coordinates of the delimitation line, as that would represent the outer limits of the continental shelf of the Russian Federation extending beyond 200 nautical miles in the Barents Sea. On that understanding, the Russian Federation consented to the examination of the Norwegian submission to the Commission with regard to an "area under dispute" in the Barents Sea. It was also stated that nothing in the Note shall prejudice the position of the Russian Federation towards the Spitsbergen Archipelago and its continental shelf, and that the recommendations of the Commission shall be without prejudice to the provisions of the Treaty concerning Spitsbergen of 1920 (Paris Treaty),²⁰ and accordingly to the regime of maritime areas adjacent to Spitsbergen.

By Note dated 2 March 2007, Spain notified²¹ that the Paris Treaty "... is the basis for recognition of the sovereignty of Norway over Svalbard. Such sovereignty, albeit full, nevertheless also entails the obligation by which Norway must allow free access, without any discrimination, under the same conditions of equality, to the archipelago's biological and mineral resources to the nationals of all the Contracting Parties, pursuant to Articles 2,3,7, and 8 of the Treaty."²² Spain's position was that "principles of liberty of access and non-discrimination are applicable to any maritime zone that might be defined from Svalbard, including as appropriate, the continental shelf, both within and beyond 200 nautical miles from the baselines from which the breadth of territorial sea is measured."²³ In as much as the continental shelf extension submitted by Norway is intended to be ef-

fectured from Svalbard towards the north – in the Western Nansen Basin region – and towards the east in the region Loop Hole, Spain considers that the Paris Treaty fully applies to those regions and reserves its right concerning the exploitation of the resources located on the continental shelf, including the extended area that might be defined beyond Svalbard archipelago.²⁴

Norway, in response to Spain's Note, stated that the opinions expressed in Spain's Note concern the scope of application and interpretation of certain provisions of the Treaty of 1920, where there are differences of views. "These issues do not affect in any manner the interpretation or application of the rules contained in Article 76 of the Convention, nor its Annex II, and have no bearing on the work of the Commission."²⁵

Rights over the Continental Shelf beyond 200 nautical miles:

The resources of the continental shelf consist of mineral and other non-living resources of the seabed and the subsoil along with living organisms belonging to sedentary species, that is to say, organisms which at the harvestable stage either are immobile, or are unable to move, except in constant physical contact with the seabed and the subsoil.²⁶ The question of what constitutes sedentary organisms assumes importance in areas of continental shelf beyond 200 nautical miles, since the superjacent waters there are high seas and not waters of EEZ. The rights of a coastal state over the continental shelf do not affect the legal status of the superjacent waters or of the airspace above those waters.

Marine scientific research on the continental shelf shall be conducted with the consent of the coastal state. The Convention does not define the term marine scientific research. In normal circumstances, coastal states shall grant their consent for marine scientific projects by other states or competent international organizations for peaceful purposes, and in order to increase scientific knowledge of the marine environment for the benefit of all mankind. They shall establish rules and procedures ensuring that such consent will not be delayed or denied unreasonably.²⁷ The coastal state may however, in their discretion withhold their consent to the conduct of a marine scientific project of another state or competent international organization, if that project:²⁸

- Is of direct significance for the exploration and exploitation of natural resources, whether living or non-living
- Involves drilling into the continental shelf, use of explosives or introduction of harmful substances into the marine environment

- Involves the construction, operation or use of artificial islands

Another important aspect of the continental shelf jurisdiction is that the coastal state is required to make payments or contributions in kind in respect of the exploitation of mineral resources beyond 200 nautical miles after the first five years of production at a site. Production does not include resources used in connection with exploitation. The Convention provides that for the sixth year, the rate of payment or contribution shall be one per cent of the value or volume of production at the site. The rate shall increase by one per cent each year until the twelfth year and shall remain at seven per cent thereafter.²⁹ A developing state which is a net importer of a mineral resource produced from its continental shelf is exempt from making such payments or contributions in respect of that mineral resource.³⁰ The payments or contributions shall be made through the International Seabed Authority, which will distribute them to the states that are party to the Convention, "on the basis of equitable sharing criteria, taking into account the interests and needs of developing states, particularly the least developed and the landlocked among them."³¹

The Convention grants states the sovereign right to exploit their natural resources pursuant to their environmental policies and in accordance with their duty to protect and preserve the marine environment.³² States must adopt laws and regulations to prevent, reduce and control pollution of the marine environment arising from, or in connection with seabed activities subject to their jurisdiction and from artificial islands, installations and structures under their jurisdiction, which must be no less effective than the international rules, standards and recommended practices and procedures to be established.³³

Antarctic Example:

A question often asked is whether the Antarctic Treaty could serve as a model for organizing a comprehensive legal framework for the Arctic. Many scholars have opined against such an approach. However, in my view, the Antarctic Treaty System and the manner in which that has developed would nevertheless, be useful in any consideration of a regime for the Arctic. This is mainly because both the Arctic and the Antarctic have several similar considerations such as ecology and environment, strategy and security, scientific research and more. In that context therefore, it would be useful to have a brief look at how the Antarctic Treaty System has developed, and how some useful derivations can be made.

The origin of the Antarctic Treaty is generally attributed to the work of the International Geophysical Year (IGY). However, international scientific cooperation could be traced back to as early as 1882-3 during the first International Polar Year. Fifty years hence a second Polar Year was convened and it was decided to convene the third Polar year after a lapse of twenty five years, which was in 1957-8. The proposal for the third Polar Year was placed before a Mixed Commission on Ionosphere, a body of the International Council for Scientific Union. The World Meteorological Organization, which was invited to participate in the Preparatory Committee, suggested that it would be preferable to convene an International Geophysical Year and extend the synoptic observations of the geophysical phenomena over the whole surface of the earth.³⁴ Accordingly, a special committee was constituted to undertake the preparatory work for the IGY. The Special Committee held four meetings and four conferences prior to the start of the IGY and also established an Ad hoc Committee in 1957, namely the Standing Committee on Antarctic Research. The Standing Committee on Antarctic Research was renamed as the Scientific Committee on Antarctic Research (SCAR) in 1961.

The work of the IGY focused on scientific cooperation irrespective of political and ideological differences, or claims relating to territorial sovereignty over Antarctica.³⁵ Then it followed the United States' initiative to propose to other countries interested in Antarctic affairs the formulation of a treaty "designed to preserve the continent as an international laboratory for scientific research and ensure that it would be used only for peaceful purposes".³⁶ A formal treaty conference was opened on 15 October 1959, and a treaty was signed within two months on 1 December 1959. Japan was the first country to ratify the Antarctic Treaty and it entered into force on 23 June 1961.

The Antarctic Treaty is a remarkable instrument, drafted through a unique negotiating process at a time when the Cold War was at its peak. The Parties to the Treaty recognize "...it is in the interest of all mankind that Antarctica shall continue for ever to be used exclusively for peaceful purposes and shall not become the scene or object of international discord." It has been particularly successful in keeping Antarctica free from military activities, prohibiting nuclear activities, and disposal of radioactive wastes there. Most importantly, it could bring together the seven states with territorial claims with five non-claimant states, including those with a basis for claims, to put aside all such claims, initially for 30 years - an agreement which continues today. It is clearly stipulated that no act or activities taking place while the Treaty is in force

shall constitute a basis for asserting, supporting or denying a claim to territorial sovereignty in Antarctica, or create any rights of sovereignty in Antarctica. No new claim or an enlargement of an existing claim, to territorial sovereignty in Antarctica shall be asserted while the Treaty is in force. With 12 countries initially, now there are 46 States Parties to the Treaty, of which 28 are Consultative Parties. The Antarctic Treaty System, which has grown up around the original treaty, now consists of the following agreements in addition to the treaty itself:

- The Convention for the Conservation of Antarctic Seals (CCAS), signed in London on 1 June 1972
- The Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR), signed in Canberra on 20 May 1980
- The Protocol on Environmental Protection to the Antarctic Treaty, signed in Madrid on 4 October 1991

In addition, there are several measures adopted by the Antarctic Treaty Consultative Meeting (ATCM), which since 1994 meets annually. The Antarctic Treaty System has intrinsic links with other organizations of the scientific community, in particular SCAR. It must be mentioned here that the geographical area of interest to SCAR extends to the Antarctic convergence, and thus includes some of the islands lying north of 60 degrees south latitude.³⁷

The Protocol on Environmental Protection to the Antarctic Treaty is specifically designed to address the issue of protection to the Antarctic environment and to designate Antarctica as a natural reserve. It also provides an interesting mechanism for settlement of disputes through an Arbitral Tribunal, which is composed of three arbitrators from a list maintained by the Secretary General of the Permanent Court of Arbitration. Each State Party to the Protocol is entitled to designate up to three Arbitrators, at least one of whom shall be designated within three months of the entry into force of the Protocol to that Party. Each Party shall at all times maintain the name of at least one arbitrator on the list.

An Antarctic Treaty Secretariat has also been established, in 2004, in Buenos Aires. The functions of the Secretariat are to:

- Support the Antarctic Treaty Consultative Meeting (ATCM) and the Committee for Environmental Protection (CEP),

established by the Protocol on Environmental Protection to the Antarctic Treaty

- Promote official information exchange between the Parties of the Antarctic Treaty
- Collect, maintain and publish the records of the ATCM and the CEP
- Provide information on the Antarctic Treaty system

The Antarctic Treaty System serves as an example of how practical solutions through an issue-based approach have been adopted in a complex setting. Some of the most controversial issues have been “frozen.” Functional approach and logistic details are addressed by the Standing Committee on Antarctic Logistics and Council of Managers of National Antarctic Programmes. Somewhat based on the Antarctic example, and how that has worked in practice, it may be possible to develop for the Arctic issue-based regulatory mechanisms on specific subjects, most importantly on environmental issues, within the overall framework of the existing legal regime.

Endnotes

*The views we expressed in this paper are purely personal views and in no way reflects the views of the United Nations or any governments or other organizations that I may be associated with.

1 Article 3 of the Convention.

2 Article 33 of the Convention.

3 See article 303 of the Convention.

4 Article 57 of the Convention.

5 Article 56 of the Convention.

6 Article 76 (1) of the Convention.

7 Article 76 (3) of the Convention.

8 Article 76 (4) and 76 (5) of the Convention.

9 Article 77(1) of the Convention. Articles 77- 81 deal with the coastal states right over the continental shelf. It may be noted that non-natural objects such as ship-wrecks are not natural resources.

10 Article 77(2) of the Convention.

11 Article 78 (1) of the Convention

12 See Annex II, Article 4 of the Convention.

13 Article 76(8) of the Convention.

14 A/57/57/Add.1 paras. 38 -41

15 SPLOS/164, para 77

16 By a Note dated 24 January 2007. For a full text of the communication see DOALOS website http://www.un.org/Depts/los/clcs_new/submissions_files/submission_nor.htm

17 By a Note dated 29 January 2007; *ibid.*

18 Agreed Minutes on the Delimitation of the Continental Shelf beyond 200 nautical mile between the Faroe Islands, Iceland, and Norway in the Southern Part of Banana Hole of the Northeast Atlantic signed on 20 September 2006, by the Minister of Foreign Affairs of Iceland, the Minister of Foreign Affairs of the Kingdom of Denmark together with the Prime Minister of the Government of Faroes and the Minister of

Foreign Affairs of the Kingdom of Norway.

19 By a Note dated 21 February 2007; for a full text of the Note, see DOALOS website http://www.un.org/Depts/los/clcs_new/submissions_files/submission_nor.htm

20 Treaty Concerning the Archipelago of Spitsbergen (Svalbard) signed in Paris on 9 February 1920.

21 Note dated 2 March 2007; see DOALOS website http://www.un.org/Depts/los/clcs_new/submissions_files/submission_nor.htm

22 *ibid.*

23 *ibid.*

24 *ibid.*

25 *Ibid.*

26 Article 77(4) of the Convention.

27 Article 246 (3) of the Convention.

28 *Ibid*; paragraph 5.

29 Article 82 (2) of the Convention.

30 Article 82 (3) of the Convention.

31 Article 82(4) of the Convention.

32 Article 193 of the Convention

33 Article 208 of the Convention

34 SCAR Manual (1972), p.7-11

35 See Bullis, H, 1973. The political legacy of the International Geophysical Year, in hearings before the Foreign Affairs subcommittee on National Security Policy and Scientific Development, US House of Representatives (November 1973),p.57.

36 See Paul C Daniels, The Antarctic Treaty, in Richard S. Lewis/ Philip M. Smith (eds), *Frozen Future*, New York,(1975).

37 Article VI of the Treaty provides that the provisions of the Treaty apply to the area South of 60 degrees south latitude, including all ice shelves, but nothing in the Treaty shall prejudice or in any way affect the rights or the exercise of the rights of any State under international law with regard to the high seas within that area.

Territorial Claims as an Example of the Geo-Economic Shift to the North

*Tapani Vaahtoranta and Lotta Numminen
The Finnish Institute of International Affairs*

Climate change and security

Jayantha Dhanapala asked me to discuss how we – the Finns, as a member of the Arctic Council – see the issue of the competing territorial claims in the Far North. To tell the truth, I do not think that there is yet any single Finnish view of the issue. The realization that climate change is already taking place and that it will have important consequences for the Arctic region is so recent in Finland that we have just begun to analyze the issue and to discuss our policy responses. Thus, what I say now is more the view of two Finnish researchers rather than that of Finland.

The paper is based on the view that the competing territorial claims are caused by climate change. The Arctic region is warming faster than most other parts of the earth and this change is creating new opportunities for economic activities and the development of the Arctic region's natural resources. As a result, the five coastal states – Canada, the United States, Norway, Denmark/Greenland and Russia – seem now to be engaged in the competition for the hydrocarbons in the seabed. Hence the territorial claims.

Our view is that climate change will pose direct security threats and can cause violent conflict. We suggest that due to climate change, we may even have to rethink our concept of security. During the Cold War, security meant the military security of the state. Since then the concept has been broadened and we now talk about human security. Perhaps we need now to broaden our concept of security even further to also take into consideration the security of species, such as the polar bear.

Climate change and the Arctic region

After the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), there is no longer any doubt that climate change is a reality. According to the IPCC, there exists a very high confidence that global warming is caused by human activities. In fact, human-induced climate change has become one of the most important issues on the global political agenda.

Climate change impacts the Arctic and what happens in the Arctic ecosystem has consequences for the global ecosystem; the reduction of snow and ice cover decreases reflectivity of solar radiation, which warms

global climate and impacts on the ocean circulation patterns and causes changes in ocean temperatures and salinity.

The melting sea ice is also leading to a new situation in the Arctic itself. The Arctic Climate Impact Assessment Report¹ suggests that great changes may emerge in the biodiversity of the Arctic ecosystem. The southern species are likely to expand northwards while the survival of the existing Arctic species is threatened due to prey availability, oil spills, shipping, and retreating ice.² Arctic indigenous peoples are now and will be affected by climate change. Serious challenges are expected to occur with their livelihoods, infrastructure and health.³

Melting the sea cover of the Arctic Ocean may also have other consequences. The seabed is assumed to contain large oil and gas reserves, which can become accessible. The Northwest Passage opened up for the first time last summer as the sea ice of Arctic Ocean shrunk. The passage may become an important route in the future. In addition, the polar thaw may reveal new fishing waters, and the warming waters will attract new fish species.

Based on this view of climate change and its impacts on the Arctic region, we make five observations.

1. The geo-economic shift to the North

While the melting of the ice cover is a biophysical consequence of climate change, the territorial claims are a societal effect of this. We see the territorial claims as part of a larger phenomenon, the geo-economic shift to the North, which is comparable to the geopolitical shift to the East that took place in Europe after the fall of the Berlin Wall.

The post-1989 geopolitical shift was caused by the defeat of the Soviet Union in the Cold War and the consequent retreat of Moscow's influence. Gradually, the European Union and NATO enlargements have been filling the space that was left by the collapse of the Soviet Union and its sphere of influence.

Now climate change is causing the geo-economic shift to the North. Warming is causing the ice to retreat, and as Scott Borgerson wrote recently,⁴ it is no longer a matter of if, but when the Arctic Ocean will open to regular marine transportation and exploration of its natural-resource deposits. While the post-1989 shift had a political motivation, joining and widening the West, the shift to the North has an economic motivation. All countries seem to be eager to seize the opportunities created by climate change in the Arctic region. This does not only apply to the five coastal states but also to Finland, where there is a growing interest in finding ways to benefit from the development of the resources in the Barents Sea, through pro-

viding, for example, transport routes and selling Finnish technology.

Though the main motive behind the shift to the North is the economic one, the shift will have political implications. One example is Canada, which is cautiously increasing its military presence in the Arctic. The question now is what kind of implications the biophysical and societal consequences of climate change will have for both traditional and environmental security.

Though the main motive behind the shift to the North is the economic one, the shift will have political implications.

2. Scramble rather than Blueprints

Much depends on how states react to the changes and new opportunities. One way of approaching the question of the future security of the Arctic, is to use the two scenarios for the future global energy and climate development that have been created by the Shell Group.⁵

The first scenario is called "Scramble." In the scenario, nations hasten to secure energy resources for themselves promoted by a fear that energy security field will create winners and losers. Little effort is made to reduce energy consumption until the energy reserves are used, and greenhouse gas emissions are not limited before serious consequences make political reaction necessary. If the Scramble is the description of the future in the North, we are likely to see more competition for natural resources, increased political tension and the adverse impact on the natural environment.

The second Shell scenario is called "Blueprints." It is based on an idea that new coalitions and cross-border cooperation will be established in order to respond to the challenges of economic development, energy security, and environmental degradation. New technological innovations are developed and governments will introduce policy instruments to direct development in a more pro-environmental direction.

As concluded by the Shell Group, "governments will determine whether we should prepare for bitter competition or true team effort."

The cooperative approach described in the Blueprints scenario would create better opportunities for the sustainable use of the Arctic resources. But, unfortunately, it seems to us that so far, the national reactions resemble more the Scramble than the Blueprints

scenario. The territorial claims are an example of this trend.

Russia took a visible step towards defining the ownership of the Arctic resources by claiming territory in the Arctic Ocean from the United Nations in 2001, and Russian submarines conducted an expedition to the North Pole in August 2007 to collect scientific evidence from a continental shelf called the Lomonosov Ridge. Pavel Baev argues that Russia's motivation behind the move in 2007 was not purely economic but also geopolitical and that it was part of Russian identity-building.⁶

Canada has been strengthening its military presence in the North. Shortly after the Russian expedition last year, Canadian Prime Minister Stephen Harper, announced that Canada would fund new naval patrol vessels, a deep-water port, and cold-weather training centre in the Canadian Arctic Archipelago.

Canada has, according to Rob Huebert,⁷ sovereignty and security issues related to its Arctic region. The question of sovereignty is related to the definition of the legal status of the Northwest Passage. Security issues are related to increasing traffic in the Arctic waters; the northern sea routes may attract unwanted activities, such as smuggling, illegal migration, and even terrorism. In addition, the question of the continental shelf with potential resources is relevant for Canada.

Since the United States has not ratified the United Nations Convention on the Law of the Sea, it cannot assert claims to the Arctic resources beyond its exclusive economic zone. There is, however, hardly any doubt that the US has great interest in both the Northern sea routes and the resources.

Norway submitted claims for the UN Commission on the Limits of the Continental Shelf for the Arctic resources in 2006, and Denmark arranged an expedition in 2007 in order to investigate the continental shelf in the waters of the Northeast Greenland and North of Canada.

3. Violent conflict is unlikely

State reactions seem to resemble the Scramble scenario, and in the most alarmist visions, even armed conflict is seen as possible in the Arctic region as a result of the competition for resources and sea routes. However, we take a more relaxed view and regard it to be rather unlikely that war would be the outcome of what we are now seeing taking place in the Arctic. One reason for our conclusion is that the UN Convention on the Law of the Sea already provides the rules for managing the resource issue. Also, it is very difficult to imagine an armed conflict between the four coastal states that belong to NATO. Russia, of

course, does not belong to NATO and its foreign policy has become more assertive in the past few years, but it is weak compared to NATO, and it would not be in the Russian interest to fight those countries that are buying its oil and gas.

There are two other reasons, based on recent academic research, that make us conclude that war in the Arctic is unlikely. The first one has to do with our current understanding of the way climate change may cause violent conflict.⁸ One of the main consequences of climate change will be the scarcity of resources, such as fresh water and food. If this happens in a country that has bad and weak governance, the state may be unwilling and unable to adapt to the consequences of climate change. If this is the case, mass migration and sub-national armed conflict may be the consequence. These factors are not characteristic of the Arctic. The retreat of the ice cover is causing an abundance rather than scarcity of resources. Besides, the Arctic countries have strong states and sub-national violence is therefore unlikely. If we are to see climate wars, they are more likely to take place in Africa than in the Arctic region.

The second reason is our understanding of the resource war. Classic resource wars caused by a struggle to grab resources are rare. The most recent example is Saddam Hussein's invasion of Kuwait in 1990 and even that operation ended in a failure. Local abundance of resources linked to their global scarcity may be a cause of armed conflict, as in the case of blood diamonds, but even these types of conflicts seem to be linked to bad governance, fragile states, civil war and external meddling. Again, these factors are not present in the Arctic region. Hence our conclusion that climate change and the competing territorial claims are unlikely to cause armed conflict in the Far North.

4. The increasing pressure on the Arctic environment is more likely

In our view, the geopolitical shift to the East has had a positive outcome. As a result of the enlargements of the European Union and NATO, the zone of democracy has been expanded into Central and Eastern Europe, and Europe was reunited. The outcome of the geo-economic shift to the North may not be as happy, even though we do not foresee any armed conflict.

Our point is that, as the ice retreats, economic activity in the North will increase. And, industrial fishing, commercial shipping and the expansion of oil and gas activities will increase the strains on the environment and wildlife, which are already impacted by the direct biophysical changes caused by rising temperatures. Without sufficient attention to the environmental con-

sequences of the economic activities, there is the danger that unsustainable patterns of development evidenced elsewhere on Earth will be extended to the Far North.

The competing interests of the coastal states in the continental shelf are, in themselves, an indication of this potentially negative trend. The use of fossil fuels has been the main cause of climate change since the beginning of the industrial era, which in turn is causing the ice to retreat. The goal of the post-2012 climate diplomacy is to prevent a dangerous climate change from happening. To do that, the global greenhouse gas emissions should be cut at least by 50 per cent by 2050. With current technology, this will be very difficult to do if we keep on increasing our energy consumption and the use of fossil fuels.

The irony of the competing territorial claims is that their motivation is competition for the undersea oil and gas fields. Even though it is not yet exactly known how much oil and gas will be discovered and it may take a long time until the reserves can be fully exploited, oil-and-gas development is already under way in the seas north of Alaska and Russia. New steps are taken to expand this activity. In March, the mining and energy office of Greenland issued permissions to explore for oil and gas in the western part of Greenland. Thus, the common motivation of the coastal states is not the prevention of a dangerous climate change, but the use of more fossil fuels that would strengthen climate change and increase the stress on the Arctic environment.

Thus, if the traditional resource war seems unlikely, David Victor⁹ argues that climate change is linked to another type of resource war that nobody should want to win, mankind's domination of nature. According to him, the real losers in this resource war will be natural ecosystems and species unable, unlike humans, to look ahead and adapt. The polar bear is the symbol of the losers of this war in the Arctic region.

5. A need for Blueprints for the Arctic

There is clearly a need for strengthening governance and managing human activities in the Arctic region in order to control political tensions, conserve the region's living resources, and not to neglect the welfare of traditional communities.¹⁰

The main forum for Arctic cooperation is the Arctic Council, including the five Arctic coastal states, Russia, Canada, the USA, Norway and Denmark/ Greenland, along with Finland, Sweden, Iceland, and permanent participants of six organizations representing indigenous peoples. But the Arctic Council is not able to govern effectively the whole Arctic agenda, and to

take into consideration all the different aspects of the changing conditions. Much depends now on the reactions of the Arctic states. Are they willing and able to make, use and develop the Arctic Council to manage the geo-economic shift to the North? Or, will other kinds of arrangements be established, such as the meeting of the five Arctic coastal states to be held in Greenland in May 2008?

Oran Young,¹¹ for example, emphasizes that it is important for future Arctic development that the Arctic Council be updated and renewed, and used for articulating issues of sustainable development. For the sustainable development of the Arctic, it is vital to integrate specific regimes: pollution, human health, shipping, energy development, fishing, and biodiversity.

One recent development in this regard has caused puzzlement in Helsinki. The reason is the fact that Denmark invited the coastal states to a meeting to be held in May in Greenland. On the one hand, there is the concern that this may be a beginning of a process that marginalizes the Arctic Council. On the other hand, there seems to be little willingness to add more politically sensitive issues to the agenda of the Arctic Council so as to make the institution more salient, since this might obstruct the current cooperation within the Council.

Since we regard the likelihood of armed conflict in the Arctic as low, we find it particularly important to develop the system of governance so that the Arctic ecosystem and the species are protected from the adverse consequences of climate change and economic activities. In addition to institutional questions, two points are relevant here:

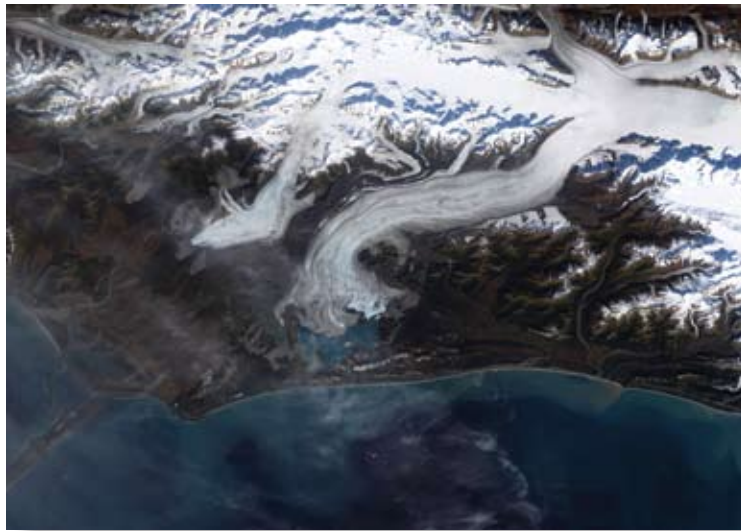
First, the states are not alike when it comes to their attitude towards environmental protection. The 2008 Environmental Performance Index¹² ranks states according to their success in meeting two main goals: the reduction of environmental stresses on human health and the promotion of ecosystem vitality and sound natural resource management. Five Arctic states, Sweden, Finland, Norway, Iceland and also Canada, do well in this comparison, while Russia, Denmark/Greenland and the United States have bigger difficulties in reaching the goals. What this means is that besides institutions, there is a need for influencing the policies of those states that may not pay sufficient attention to environmental considerations.

Second, whatever the differences in the environmental performance of states may be, the IPCC predicts that climate change is likely to cause a massive extinction of species. Depending on the temperature increase, 20-70 per cent of animal and plant species are feared to become extinct due to human-induced climate change. Every state is responsible for this adverse environmental consequence of climate change.

Therefore, we find it important that besides the states, and perhaps the European Union, also those non-state actors that take care of the interests of the natural environment are given a role in the management of the consequences of climate change in the Far North.

Endnotes

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- 3 John D. Ford, Barry Smith, Johanna Wandel, Vulnerability to climate change in the Arctic: A case study from Arctic Bay, Canada. *Global Environmental Change* 16, 2006.
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- 5 The Shell Group http://www.shell.com/home/content/aboutshellen/our_strategy/shell_global_scenarios/two_energy_futures/two_energy_futures_25012008.html
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- 7 Canadian Arctic Maritime Security, Canadian Military Journal, Summer 2007.
- 8 See, e.g., Nils Petter Gleditsch, Environmental Change, Security, and Conflict, in Chester A. Crocker et al., eds, *Leashing the Dogs of War*, 2007.
- 9 What Resource Wars?, The National Interest Online, 12 November, 2007.
- 10 See, e.g., WWF, A New Sea. The Need for a Regional Agreement on Management and Conservation of the Arctic Marine Environment, 2008.
- 11 Oran Young, Presentation on 13 March 2008 at Carnegie Moscow.
- 12 2008 Environmental Performance Index, <http://epi.yale.edu>.



BERING GLACIER - PHOTO BY NASA

Rapporteur's Report¹
PROBLEMS OF ARCTIC SECURITY IN THE 21ST CENTURY

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Summary of Key Themes

- The warming of the Arctic climate is having profound effects on the physical, human, and natural environment throughout the region.
- Knowledge of these effects is incomplete and there are uncertainties in available data.
- Indigenous communities have been directly affected – their health, environment, economy, and ways of life. They have invaluable contributions to make, both in coping with environmental trends and in helping to establish Canada's sovereignty over northern territories by non-military means.
- Climate changes will also bring many opportunities, as navigation becomes easier and access to mineral and fishing resources improves.
- Territorial disputes persist and may grow with increased access to the Arctic's resources, raising possible future risks of armed conflict, including by accident.
- Noting that two Arctic states possess nuclear weapons and others are members of NATO, some speakers urged consideration of an Arctic Nuclear Weapon Free Zone. Others instead favoured greater attention to nuclear disarmament and meeting immediate concerns of indigenous peoples.

Friday, 11 April

9:00 – 9:45 a.m.

OPENING SESSION

Jayantha Dhanapala opened the conference. He discussed its key purposes, focusing specifically on the need to examine the effects of climate change on peace and security in the Arctic, including issues relating to human security of indigenous peoples. The Conference would consider possible future risks of military conflict arising from conflicting territorial claims in the region, and assess a proposal to establish an Arctic nuclear weapon free zone (NFWZ). He said that the meeting was designed as a “Dialogue” to provide a forum for engaging key actors – academic, indigenous peoples, and government – to promote the search for solutions to common problems.

Michael Stevenson stated that a key goal of Simon Fraser University (SFU) was to promote dialogue with the community on key problems of the day. He emphasized the role of SFU’s new School for International Studies in promoting active dialogue and engagement in addressing a wide range of issues, including justice and human security interest, climate change, failed states, non-state actors, and other issues. He thanked Jennifer Simons for endowing a visiting chair in “international law and human security,” noting that Dhanapala is the first to hold this position.

Jennifer Simons indicated that she had asked Dhanapala to choose the topic for this conference, and that he proposed dialogue on problems of Arctic security in the 21st century. The issue has new urgency, given the rapid pace of warming of the Arctic climate, leading to significant environmental, political, economic, and security implications throughout the region, especially for indigenous populations. Increasing efforts to exploit economic resources may raise the risk of territorial disputes. We need cooperative security, yet are seeing grandstanding disputes by various countries, including Russia and Canada. We need more cooperation among Arctic rim states, to prevent the use of military force to achieve economic goals. We need constructive, demilitarized common security, she concluded.

Sergio de Quierez Duarte delivered the Keynote Address, in which he sketched the outlines of what he termed “an eclectic Arctic security regime” that would address threats in the region relating both to nuclear and conventional weapons. He discussed the applicability of the principles of the UN Charter, as well as the possible contributions of other multilateral instruments, including the Antarctic Treaty of 1959, Seabed Treaty of 1971, and a family of treaties establishing NFWZs in other regions. The Arctic security regime should provide for confidence-building measures to prevent the occurrence of armed conflicts, address basic human security needs in the region, promote the peaceful resolution of disputes, encourage cooperation in disaster relief, promote scientific research to protect the environment and improve living conditions, establish a clearinghouse for information, and provide a mechanism to engage local communities. He called the general approach, “common cooperative security,” stressing the principle of building multilateral cooperation upon what has already been agreed.

10:00 – 12:00 p.m.

SESSION I: The Arctic Environment and the Impact of Climate Change

Chair: Prof. John Harriss, Director, School for International Studies, Simon Fraser University

Ola Johannesen began by commending the interdisciplinary gathering here. He provided some additional background on the Norwegian Arctic explorer, Fridtjof Nansen (cited in Duarte’s remarks) and on Arctic research institutions in Norway. He focused largely on changing physical conditions in the Arctic (ice, snow, and permafrost). He displayed an animated graphic showing the rapid reduction of the size of the Arctic ice cap, even in the first 9 months of 2007. Some ice is now rebounding, showing natural variations. By 2071, there may be no more summer ice in Arctic, by recent trends. The climate warming trend is more pronounced specifically in the Arctic region. He stressed the importance of studying water vapour transport trends on a global basis. Fresh water is increasing in the Arctic. The Greenland ice sheet is melting: if all Greenland melted, there could be a 7-meter sea level rise – but, he cautioned, don’t exaggerate the Greenland melting effect, which can take thousands of years. The Gulf Stream is a pretty robust system. There is much natural variability of climate system. Much global modelling being done, yet there is much uncertainty in these global model predictions. Al Gore is “overselling” the issue, leading

to a backlash. We need to recognize natural variability, recognizing the long-term trend toward warming. Satellite remote sensing data show an 8% decrease in ice since 1980. There is some correlation between CO2 concentrations and ice thinning. Statistical projections show continuing loss of ice. The Greenland ice sheet is actually growing, over 1500 meters, with slightly more melting than growing, overall. About 125,000 years ago, the temperature was higher in Greenland than it is today; the sea level was higher then by several meters. We need improved models. Norwegian cod are moving north. Economic interests (fishing and oil) are growing in the Barents Sea, as it becomes more navigable. Some new species will move north for fishing. Key challenges include: disappearing Arctic ice cover; the impact re CO2 uptake; changes in the Greenland ice sheet and sea-level rise; and the overall impacts on European/North American climate, society, and economy.

Robie Macdonald also addressed effects of Arctic warming, but focused more on biological and ecological effects. He stressed the concerns and interests of “Northerners” in adapting to such changes. Much information comes from satellites and we need to collect time-series data from all available sources, not just satellites; there is a woeful lack of time-series data. The “Northerners” are increasingly concerned about security issues, relating to food, water, energy, shelter, etc. Long-term time scales show various ice ages. Ice is decreasing faster than projected models. We’re moving toward an ice-free summer in Arctic. We can handle slow change, but there is now a fast change problem, due to feedback in the hydrological, cryosphere, and organic systems. We have passed the Arctic sea-ice tipping point, and are facing several time bombs (methane from permafrost, rise in contaminants, changes in the Greenland ice cap, etc). There are both risks and benefits from these changes. We need to study how food webs shift. There are many dangers stemming from the introduction of other species, and the system is now vulnerable to the sub-Arctic species that are moving north. Fishing will expand, and will result in a change in the disposition of carbon. Ultraviolet radiation is another issue. The “system is being hit by a number of things.” We need to think of the Arctic as not “up there” but at “the centre”. The Mercator projection is misleading in this respect. There are many unsettled borders in Arctic; Russia is claiming an area extending to the North Pole. The point is that the change we are seeing is a lot more than loss of ice. Northerners need to engage in “adaptation, risks and opportunities”.

Discussant: Chief Joe Linklater offered a personal

perspective as a “Northerner” of the Vantut Gwich’in First Nation. The Arctic is our home; we have no place to go: “Imagine the ground melting underneath you.” Northerners live upon the ice and permafrost. We live on the land because of our culture, not its value. The climate is changing our way of live rapidly. The North has an extremely healthy ecosystem. The green returns quickly after forest fires. Yet climate change is changing the ecosystem quickly: rivers, creeks, tundra – water is flowing in different places; change occurs almost annually. Elders have stopped trying to predict the weather; it is too dangerous to do this; they refuse to predict now. The future of young Northerners is uncertain; there are problems of drugs and alcohol. There is a need to focus now on adaptation. Now 14 universities doing research on what types of adaptation needed. Rapid climate change has led to the loss of several lakes; lake community’s identities are changing. It also has impacts on animals: caribou herds’ migratory routes have changed; food consumption patterns are changing and there is now more reliance on meat other than caribou meat. We are worried about the Porcupine caribou herd, now at about 116,000; there are concerns of over-hunting. Our identity is at stake. Canadian north is facing large infrastructure development costs ahead. Other costs include health, justice, etc. Scientific papers provide useful information, but we have our own information. We have an oral history programme; our story tellers are important sources of information; the stories are told in indigenous languages, later analyzed. Our information is thousands of years old, not fifty. Our elders are experts on water, e.g.; on nutrients; our knowledge has been handed down generation to generation. Hence, there is a need to involve indigenous people in assessing Arctic Security issues.

Discussion

Questions and comments were addressed to the following issues:

- The impact of climate warming upon immigration in the Arctic.
- The extent that “natural variability” might counteract warming trends.
- What can the North alone do about the global climate change problem?
- How can the complexities of the changes underway be explained to the lay citizen?
- The adequacy of the educational system

for indigenous peoples.

- The current condition of the Aral Sea (in Central Asia).
- How the south should engage the North.
- Since Arctic problems have extra-Arctic origins, how can the North alone respond? Is there danger of militarization, which also has its own extra-Arctic origins?
- How to maintain wildlife stocks?

Responses addressed:

- The importance of learning from the elders of indigenous peoples. Non-northern scientists haven't done well in this area. There is a need for more frequent meetings and trust. In Yukon, traditional knowledge has to be part of every decision. Traditional knowledge must be used. Climate change is not new; adapting will take a long time. We must learn to live with climate change.
- Uncertainties persist in predictions of the Intergovernmental Panel on Climate Change.
- On the broader effects of climate change – some people will benefit: winters will be shorter; heating expenses will drop; populations will grow (e.g. in Russia). Such issues need further study. Permafrost effects present a huge environmental problem; pipelines and the oil industry's infrastructure are also affected. Disappearing ice may be good for the oil industry, but not the world.
- Climate change is about winners and losers; many Third World countries are not in a good position to care of themselves; we need to think of how to level that playing field.
- It is not too late to address climate change problems. We can stabilize CO₂ in atmosphere and need to start now.
- How can we engage average person on street? The media plays a huge role –

yet it is a double-edged sword. Scientific debate can confuse the public; the media are just interested in controversy; scientists are paid to prove themselves wrong; we need a responsible news media.

- There is still a lot of natural variability in the system, with a general trend of “warmer, wetter, and wilder”. Public polling data shows much concern over global warming. CO₂ sequestration has its critics.
- Yes, there will be some benefits from warming, but at what local cost? There are two UN charters on indigenous human rights. How relevant are they now? What are Canada's obligations under treaty obligations? What will China do? These are big unanswered questions. India also concerned about climate change.
- This conference can help to have impact on use of elder's knowledge: herds; societies; and change. Traditional knowledge is not written, but oral. Education: emphasis on land-based education, not classroom based; when children enjoy education they retain it better; the North is a classroom.
- Al Gore has placed an unfortunate emphasis on mitigation rather than adaptive strategies. Need more emphasis on adaptive strategies.
- Addressing the contaminants problem requires a “no regrets policy”. New low-energy light bulbs can help.
- It is hard to assess the data on wildlife stocks. It is very important to monitor fish stocks.
- (There was no comment on the condition of the Aral Sea.)
- On demilitarization: how realistic is this, e.g., in Murmansk?

Noon: Keynote speaker, Chris Westdal. Key theme: Canada/Russian relations.

1:30 - 3:30 p.m.

SESSION II: Military Security in the Arctic

Chair: Jayantha Dhanapala, Simons Visiting Chair in Dialogue in International Law and Human Security, Simon Fraser University

Mike Wallace approached “Arctic security” from the military standpoint, noting that during the Cold War the region was highly nuclearized, with submarines, aircraft, and nuclear-capable missiles. The end of the Cold War led almost to a de facto NFWZ in the Arctic, with the easing of superpower rivalry. Where are we now going? Toward a de jure zone? Or toward a new Cold War? What can Canada do? It should seek to make the impossible possible. An Arctic NFWZ – proposed by Canada’s Pugwash as well as in articles by Ramesh Thakur and Jayantha Dhanapala – is often viewed as impossible. Existing zones have focused on areas free of nuclear weapons. An Arctic zone would have to involve some rolling back of existing deployments. It is difficult to roll back in a populated area. The case for an Arctic zone rests on the changing economic and political activity in the region. Legal regimes there are ambiguous and incomplete. There is a danger of creating “facts on the ground”. How can such a zone be created? Key difficulties include the fact that nuclear submarines are still deployed there and new plans exist for additional deployments. The Russians are seeking to expand their Northern fleet and are unwilling to give up this part of their triad. A zone be built in stages, step by step – e.g., to clear the Northwest Passage from nuclear weapons. The US, UK, and others consider the Northwest Passage as an international strait. There could be a possible compromise on this. Canada’s sovereignty claims are sensible, such as the regulation of commercial shipping. Yet the submarine issue is more serious. There are not many American patrols in Arctic any more involving such submarines, but it is hard to tell whether they are nuclear or not, as the US neither confirms nor denies the issue. The status of submarine transits may be worthwhile postponing for later. Canada could call for a limited zone applied to non-nuclear-weapon states in region, covering radars, auxiliary facilities, etc. A place to begin could be with parts of the nuclear complex: start cooperation among non-nuclear-weapon states first, and on non-controversial (e.g. environmental) issues. Then focus on how to expand cooperation further. How can one convince Russia in particular to consider such a proposal? The zone must be embedded in a larger nuclear weapons regime. The US and Russia could agree to a major drawdown in their arsenals – globally – in accordance

with Article VI of the NPT and move on from there. The Hoover Plan (offered by George Shultz, William Perry, Henry Kissinger, and Sam Nunn) offers an agenda for ridding the world of nuclear weapons. The non-profit World Security Institute has proposed a “draw down” proposal, down to about 500 warheads each for the US and Russian nuclear arsenals. Then, one can think more seriously about creating an Arctic NFWZ. Russia could rely on its land-based Mirved-Topov missiles and the US could rely on missiles based outside the zone. There is no competing reason to deploy such weapons in the region. The task could later then turn to do decommissioning Russian nuclear submarines and bases, a big political challenge in both US and Russia. The next US President may be willing to consider deeper nuclear reductions. The key is to maintain strategic parity, with fewer weapons, and not in the Arctic.

Alexander Nikitin noted a shift in focus toward the Asia/Pacific region and away from Euro-Atlantic. He also noted growing interest in security issues in the Arctic, which covers most of Russian territory. In the UN, some 50 of its member states have territorial claims against each other. Seven countries are in dispute in Antarctica. There have been several estimates of significant oil gas reserves in the Arctic (US Geological Survey, Wood Mackenzie, et al.). The US has not yet ratified the Law of the Sea Convention. Russia is seeking more of the continental shelf, but this has not yet been accepted by the UN due to lack of scientific proof. Russia placed its flag on the seabed of the North Pole in 2007. Russia has the largest share of the Arctic’s population; its biggest cities, with 30 cities with over 10,000 citizens and 500,000 in Murmansk, compared to the biggest Arctic town in North America, Inuvik, with a population of 3,000. The Northwest Passage is 4,000 miles shorter in length than the passage via the Panama Canal. Some US corporations are involved in widening the Panama Canal, some other ones interested in the Northwest Passage. About \$7 billion will be needed for to establish a Eurasian Northern Sea Passage. This will require a lot of ice-breakers, including nuclear ones. Russia can afford this investment. Murmansk will play a key role here. The Russian “Norilsk Nickel” corporation is building its own icebreaker fleet. The logic here is based on protecting your economic investments. There is definitely strategic competition between US, Canada, and Russia. Canada has about 17 icebreakers plus 8 more to be built (about \$7 billion), plus the RadarSat-2 satellite system, and hundreds of border-guards. The US is increasing its military presence in the Arctic; it has 24,000 armed forces in Alaska; 3 Army bases, etc.; it is spending some US \$100 million for icebreakers and

investments are rising. Russia has the biggest nuclear icebreaker, the “50th Anniversary of Victory.” Its navy conducts exercises in Arctic: with air-carrier ships, and strategic bombers flying over the North Pole. Concerning the NFWZ idea: the Arctic is full of nuclear and related activity – including a former nuclear test site at Novaya Zemlya; submarines in Murmansk; radars in Greenland; a satellite site in Spitzbergen, Norway; submarines in northern Canada, and an ABM site in Alaska. Yet there is much homework to do before establishing an Arctic NFWZ. It took 14 years to get a Central Asian zone, which also included formerly nuclear states; and covered a nuclear test site. Such a zone works only in combination with Comprehensive Nuclear-Test-Ban Treaty, and IAEA inspections. The Central Asian zone (five times the size of France) was the first in the northern hemisphere and it addressed environmental damage from nuclear activities during the Cold War; it is also the only such zone in a region that is rich in energy resources. Yet the Central Asian zone is not yet finalized due to issues relating to security assurances and criticism by the US, UK, and France of certain provisions of the relevant treaty. There are many questions to answer with the Arctic zone proposal, including: What is “development”? What will happen to the labs? Must testing sites and facilities be destroyed? What is “production”? How are nuclear subs to be treated? How would nuclear waste depositories be handled? Would there be an exemption for transit? Also, no country is fully within the zone. Would it have a permanent organization? We are now facing a crisis in nuclear disarmament – many key treaties are facing difficulties – the ABM Treaty has been abrogated, the CTBT has not yet entered into force, and the START-I treaty is scheduled to expire. Hence new initiatives are timely – I support in principle the idea of an Arctic NFWZ, but it needs much more work.

Rolf Ekeus reviewed some Cold War history and anti-submarine warfare concerns. Control of Arctic waters was key during the Cold War. Now, much has changed. Yet launch-on-warning postures remain. Shipping lanes could open up large gains for commerce; yet there is some increased economic vulnerability; and the principle of freedom of seas in the Law of the Sea Convention may come into conflict with interests of Arctic rim states. There is the potential for tension and incidents. Little is known of what resources are accessible. Large areas are not the property of any single state. The potential for conflict is obvious, resulting from competing claims of interest. There is a danger of threats to the common heritage of mankind. There has already been one conflict over resources

in the region, the Iceland/UK “cod war”. Hence there is a need for multilateral arrangements within or outside framework of UN. As sea lanes open, as oil and gas are discovered, a regime will be needed. Nuclearization of this region would be contrary to nuclear disarmament and the diminished role of such weapons. An Arctic zone would have to cover 2 nuclear-weapon-state territories. Yet pieces of territories are not an unprecedented concept, he said, noting the old Nordic NFWZ idea. An Arctic zone would have to cover all areas outside national territories – waters only – and would have mostly a naval meaning and be essentially intended to limit competition in strategic naval warfare. The “Incidents at Sea Agreement” is far from enough as a model. Strategic bombers are still part of US and Russian nuclear forces; it should eventually be possible to discard these in an Arctic zone. The idea should be on the agenda in bilateral US/Russian strategic nuclear negotiations, which should cover issues relating to the airspace. He urged against putting “all your eggs in one basket” – don’t go for the Zone concept alone. Partial measures could together lead to a de facto NFWZ. Demilitarization in one idea, but at best it will be only a slow process; in the meantime, there is a need for military confidence-building measures; this too is a tall order. The Army and Air Force understands such measures, but navies are notoriously reluctant to agree to them. The risk of military confrontation is real; there is a need for bilateral confidence-building measures leading to a multilateral treaty.

Jozef Goldblat discussed his experience in drafting two NFWZ treaties and addressed broader issues relating to the contributions of such zones to peace and security. He stressed that such zones go beyond the NPT in excluding the stationing of nuclear weapons within the zone. Treaties establishing such zones (e.g. the Antarctic Treaty) have covered controls over mineral resources. The Treaty helped to avoid the danger of new competition and rivalries. It was needed to avoid conflict, to regulate activities. He reviewed the history of the negotiation of the Antarctic Treaty, including work on the “Wellington Treaty” and “Madrid Protocol”. In much of the discussion of Arctic issues, some say, attention should focus only on the US and Russia. Yet if a group of countries decide to create such a zone, fine, the nuclear powers are not necessary – countries do have the right to agree not to allow nuclear weapons on their territories. There is of course a need to consult nuclear-weapon powers: this happened in Central Asia, but the regional states have no obligation to follow diktats of the great powers. The Central Asian treaty is valid even if nuclear-weapon-

states do not ratify its protocol. Some say the length of negotiations is too long to create such zones. Yes, it does take time; the African zone took some 30 years. Sure it takes time, so what? They are still worthwhile to pursue, even if great powers are opposed. The US had opposed test ban, then supported CTBT, then opposed it again. Re INF Treaty, the US and Russia accepted verification without precedent. What was unacceptable became acceptable; verification lasted 12 years until all INF destroyed. Other advantages of a NFWZ exist: they create a different type of relations among countries of region; they offer common forums and institutions; parties can discuss other matters including conventional disarmament; and they can advance their common environmental security interests.

Discussion

Questions and comments were addressed to the following issues:

- On weapons issues, what should be Canadian policy priorities – NATO doctrine, or NFWZs? We should focus first on changing NATO nuclear doctrine, which is impeding progress on disarmament. Another participant agreed, calling for greater practical cooperation among like-minded Arctic countries. Another said Canadian Pugwash should drop the idea of a nuclear-weapon-free Northwest Passage as it would “annoy the US navy”. Another speaker concurred that it was “not the right time” for that proposal.
- Conventional forces are still a problem, in terms of access to resources. Why does China have the world’s second largest ice breaker?
- An Arctic NFWZ is farfetched, given that the US and Russia haven’t yet renounced the utility of nuclear weapons.

Responses addressed:

- Re the nuclear free Northwest Passage and the US Navy, one speaker said the US Navy has already taken nuclear weapons off its surface ships and has not sent any nuclear subs through the passage for many years. Yet the Navy might well be annoyed – it’s best seen as just one step to consider, not necessarily a

first step. The submarine issue will eventually have to be addressed. Small powers can set up their own nuclear-free areas in the Arctic, without necessarily seeking to get nuclear-weapon-states to join. Re NATO vs. NFWZs as priorities – these are two sides of same coin; yes, NATO policy must change and Canada’s rigid adherence to NATO doctrine is a problem. Taking an Arctic initiative may be a way to attract more public attention in Canada.

- On conventional forces -- we have the Conventional Forces in Europe (CFE) treaty, negotiated via the OSCE [Organization for Security and Co-operation in Europe]. The US and Canada participated, yet the Western states never ratified the CFE amendments. Many other conventional force issues are more important than those in the Arctic. Re the Northwest Passage: it is a good idea to search for a part of the region for a NFWZ. The challenge is to figure out a configuration that would be acceptable to concerned parties.
- It’s hard for small group of states to create a NFWZ if they are opposed by the great powers. You can’t put aside military competition; maybe the Arctic zone is a longer term goal. Maybe a better approach is to begin with a bilateral US/Russian approach, for example to limit nuclear submarine activity. Keep the goal of the zone, but go step by step.
- What’s key is the basic goal of seeking the withdrawal of nuclear weapons from bases on foreign soil. You don’t need a treaty for this: just withdraw the tactical nukes from Europe. Re the need to change NATO nuclear doctrine – Denmark and Norway have said they would not allow nuclear weapons on their territories; the same with Spain and Iceland; this is not unprecedented. This is so, even without a change in NATO doctrine.
- Proponents of the zone idea need to engage Northerners, the aboriginal governments.

4:00 – 6:00 p.m.

SESSION III – Human Security

Chair John Richards, Professor of Public Policy, Simon Fraser University

Tony Penikett described the aboriginal land and governance treaties that Canada negotiated with three northern territories (The Yukon, Northwest Territories, and Nunavut). As a “hedge against broken promises,” Parliament attached the Yukon treaty to the Canadian Constitution in 1993. These treaties are huge improvements over 19th century treaties creating Indian “reserves.” The Constitution of Canada has recognized aboriginal rights since 1982. There has been much devolution of powers in the province, including in infrastructure development. Port Radium (in the Northwest Territories) was a source of uranium for the first atomic bombs. Yet Canada has not fully implemented treaties, in particular the Nunavut Land Claims Agreement. The citizens of Nunavut “do not want to be clerks of a federal storehouse. They want to own the store.” It would “make strategic sense to devolve responsibility for mineral and energy resources to northern governments.” The northern territories seek the powers that provinces enjoy. Canada bases much of its Arctic claims on thousands of years of Inuit occupancy and use of Arctic lands, waters and sea ice. At stake is control over resources, security, and sovereignty. Devolution of land use and management responsibilities can strengthen Canadian claims to sovereignty.

Udloriak (Udlu) Hanson described the current status of the Nunavut Land Claims Agreement, focusing on human side of climate change and the issue of Arctic sovereignty. Her organization – Nunavut Tunngavik Inc. – is responsible for implementing that agreement. Inuit comprise 85 per cent of the people who live in Nunavut. They are not simply tenants, but stewards of the land. Inuit are proud Canadians and want to help the government to assert and affirm Canada’s Arctic sovereignty, but they are not sure if the government wants their help. The Agreement is long and complex. The problem is that the government is not implementing many parts of it. In 2006, NTI sued the Canadian government on grounds of non-implementation; for example, it never set up a Nunavut Marine Council. Canada has disbanded the Office of the Arctic Ambassador. Canada voted in UN against the resolution on indigenous peoples. Canada should support this resolution. Asserting Arctic sovereignty is our common goal. Investing in people and infrastructure is best way to promote

sovereignty. Rebuilding and redeploying the military should be “one part of the strategy but not the whole strategy.” The government should engage the Inuit – “Investing in people and communities as well as military infrastructure ultimately is the best means of expressing sovereignty.”

Darcie Matthiessen of the Arctic Athabaskan Council described the diverse human and environmental effects of climate warming in the Yukon Territory. Such changes have been detailed in the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Similar conclusions have been reached by recent Arctic Climate Change Assessment reports. The response must involve both mitigation and adaptation. It must involve a partnership between the Government of Canada, aboriginal governments, and territorial governments. It must involve improvements in governance and capacity-building. She described the current status of Yukon First Nation land claims, which concern rights over resources and land use. Current projects in the Yukon address the issues of food security and a climate change risk assessment. Future projects concern Arctic resiliency and diversity and risks from contaminants in the Arctic. There are needs – for a northern “comprehensive climate change adaptation program”; for a policy of implementing the land claims agreements; for community land use plans; and for funds for multiyear projects.

Franklyn Griffiths questioned the usefulness of the “human security” concept in the North. What makes good sense from the south might not make sense in the North. “Human security” is about as appropriate in the Arctic as is taffeta cloth in an Inuit primary school. He would rather talk about peace and abolition, than “security.” Security is a discourse. It has many meanings. Usually “security” is raised to underscore some urgency or priority. Human security does not have a good fit in the Arctic. Security has been used as a marketing technique: to sway others. This tends to involve exaggeration. We need to take this with a grain of salt. Security is a notion that privileges the state – the ultimate “referent object.” It’s about power. Security-talk is about opposed forces, it doesn’t lend itself to cooperation. It has hindered disarmament and abolition. It has privileged the military dimension of issues. The trend is toward de-militarization of security talk – starting in the late 1980s. Notion of security has been widened in late 1990s, from the state, to the individual. Lloyd Axworthy has spoken of the “sustainable human security” idea – focusing on the security of the individual; basic political and economic needs; the basic promise of the rule of law, good governance, as being as important to global

peace as disarmament and arms control. Yet the Government of Canada is now backtracking, and focusing more on fears of individuals, not their wants and rights. Human security is now in danger of being remilitarized in its country of origin. Human security emerged as a result of an alliance between groups in civil society and liberal-democratic governments, and focused on such goals as outlawing landmines and establishing the international criminal court. Threats to life in the Arctic include the very high suicide rate among young Inuit males. The very notion of “civil society” may be “out of place” in Inuit Canada, given its small and far-flung population. Inuit do not seem to be “greatly exercised by actual and potential foreign military activity” in the region. They may also question Canadian defence spending, which might be better spent on maintaining a vibrant Inuit society and effective Inuit occupancy of Canada’s high Arctic spaces. Our best referent object in the Arctic is the “remote small indigenous community”. We need shared norms and standards of behaviour: order without law.

Bernard Funston began by addressing three applicable metaphors: homeland; frontier; and wilderness. The fourth is a laboratory. The Arctic is exciting for scientists. Inuit are being studied ad infinitum. He offers a radical proposal: let’s get rid of the “Arctic Circle.” It’s a device for ghetto-izing the Arctic people. It pushes them to the periphery, politically. Inuit are now mainstream, not on the periphery. The Arctic has become a global issue. Now that it’s seen as a global issue, we’re seeing diverse proposals. Some see the Arctic as a “global commons” good for the bottom billion on Earth. Some adopt an exclusionary view: keep out. Some are for a scientific approach. Some (e.g. Hans Corell) argue against a new treaty, but in favour of implementing existing treaties better. The Arctic Council embodies the shared responsibility idea, but has not been good at bringing in observer voices. There is a state-competition issue now: a Russian flag on the seabed, the idea of an Arctic NFWZ, etc. How can we create a balance? What can be done about the bottom billion, are the northern resources only for us alone? “Governance” solutions are not easy or straightforward. Is the Arctic problem to be resolved only in the Arctic? No: the contaminants problem did not originate in the Arctic. Greenpeace misses the point in its call for an Arctic park. Solutions in the North are not always in the northern nature. Real sustainability problems exist in the big cities, in terms of effect of climate change. Don’t be too quick to propose solutions to the Arctic: the answers may be more closer to home.

Discussion

Questions and comments were addressed to the following issues:

- How important is self-government for Northerners to Arctic security, since most of what is threatening comes from the South?
- Some differences exist among the Northerners, we need to recognize this. Some learning needs to be done in the North.
- There’s a need to stress the importance of partnership: local and federal.
- Don’t push self government too hard. We’re parts of communities. The key is a moral order. How to create such orders? This is more than a matter of “sovereignty”.
- Self-government is critically important.
- With respect to moral order: where is one’s sense of moral order in face of the high rate of suicide among young Inuit males?
- Suicide is a sensitive subject. We need to talk more about it. A Nunavut suicide prevention strategy being thought about now. All Nunavut are affected by suicide. All have their own reasons. Suicides are a symptom, not a cause. Inuit aren’t very vocal; they don’t hold protests or blockades; suicides are treated quietly, without much talk. Inuit form a small community. First-nations people have been aware of the problem for years; the problems are of identity and culture.
- Is there any case in the North where a community has achieved a western standard of prosperity without experiencing a cultural loss? Curing what some see as impoverished, can amount to changing a culture.
- What can the North teach the outside world? It can teach ability to adapt – it knows how to survive. The Arctic people have a greater likelihood to survive climate change than the urban rich.

- This Conference should explore a new theme: the integrity of the school systems of the North. Are the schools providing what the students need? Or is there a long way to go?

Responses addressed:

- The educational system is not well serving students' needs. Nunavut adopted Alberta's curriculum, then Northwest Territories', and we are now trying our own. The system is not reflective of our needs. What is "success"? It means different things to the North and south. It should be OK for Inuit boys to believe they just want to be a hunter, and to respect elders. Yet there is pressure to learn English and go to college. Doing this almost requires leaving the world behind. The educational system should allow people to do what they want to do.
- Television has led kids to use English more rather than their own languages. We do not yet have educational systems for indigenous cultures; they're only used for assimilation.
- The education should focus on the land and involve the elders. Education must be culturally relevant.
- Scandinavians are also facing the challenge of getting a practical education.
- Expectations of students in the North should be as great as anywhere else. Language and culture and mores are all important. Our environment influences what we become. Though he had received a traditional education, the respondent also said he had an opportunity to continue his education at Harvard. This combination of traditional knowledge with knowledge of the world together expands one's horizons.

Saturday, 12 April, 9:00-11:00 a.m.

SESSION IV: National Sovereignty and International Law

Hariharan Pakshi Rajan described the relevance to the Arctic of the UN Convention on the Law of the Sea (UNCLOS) – the "Constitution of the oceans"

– especially in the official determination of territorial seas, contiguous zones, exclusive economic zones, and the continental shelf. There are now 154 states parties, including all Arctic states except the US. He described how the various boundaries are calculated from territorial baselines. Coastal states exercise exclusive sovereign rights over the continental shelf for the purpose of exploring and exploiting its natural resources. States may extend their rights beyond the outer limits of the continental shelf beyond 200 miles, but only in accordance with UNCLOS Article 76. Such claims shall be submitted to the Commission on the Limits of the Continental Shelf, which shall submit its recommendations, based on scientific and technical data, to the coastal state. In the Arctic, Russia and Norway have made submissions to the Commission. There is a body of 21 experts; no lawyers; states can nominate experts only; it is elected by a meeting of states parties; members serve in their personal capacity; it is not UN affiliated; the UN provides the secretariat of the Commission; the Commission does not adjudicate, it only makes recommendations, which become binding when state accepts them. States can submit charts to UN Secretary-General, which are only then made public. The delimitation of the continental shelf between Russia and Norway has not yet been settled. Various rights to exploit resources on the continental shelf were described in detail, as well as some of the responsibilities of states – for example, in protecting the marine environment. Another treaty that has relevance as a possible model for organizing a legal framework for the Arctic is the Antarctic Treaty, which the presentation describes in detail, along with other relevant maritime and environmental treaties.

Tapani Vaahtoranta cited Arctic territorial claims as an example of the "geo-economic shift to north." He discussed how Finland (a member of Arctic Council) views this issue. Finland is still working out its policy in this area, so these are only his personal views. The new territorial claims are due to climate change. Climate change will affect "Arctic security" – this is not an easy concept and we need to be careful about whose security we are talking about, and what do we mean by "security"? We need to think about "consequences of consequences": societal changes as well as new security issues. There was a geopolitical shift to the east in Europe after end of Berlin Wall – now the retreat of ice in the Arctic is leading to a geo-economic shift to north (into "empty space"). What are the political implications? The Shell group offers two scenarios: scramble (competition) vs. blueprints (cooperation); there are more signs of a scramble now.

Climate change could lead, through steps, to armed conflict, but not likely, we believe. UNCLOS provides rules for managing resources. Four of the five coastal states belong to NATO. He doubts there are risks of war with Russia. Various variables will affect the risk of armed conflict. Climate change will cause scarcities – if a state is weak or undemocratic, it may be unable to adapt to climate change; sub-national armed conflict is possible. Climate change is causing an abundance of resources, not scarcity. Sub-national conflicts are unlikely. Climate-change conflicts are more likely in Africa (e.g. Darfur). Past resource wars (e.g. Saddam in Kuwait) have led to failures. The Arctic region has strong states. He is more concerned about environmental effects on ecosystems in Arctic – the danger is greatest to ecosystems that are unable to adjust to climate change. Arctic resource wars are unlikely. Ironically, the motivation of competing territorial claims – namely to use more fossil fuels – is causing even more climate change. Species security is a major concern. We need a new way of thinking about “security.” Attitudes of states differ on the natural environment – Russia, Denmark, and US are not doing as well as other Arctic states. Animal and plant life are in jeopardy. The key is to manage the consequences of climate change; and to protect rights and security of indigenous people and environment.

Michael Byers noted that 40 per cent of Canada is Arctic. He said he sailed in late 2006 on ice breaker in the Northwest Passage and saw no ice. More ice has been lost since then. He noted that Macdonald said we’ve passed the “tipping point” on Arctic sea ice. Canada has not done a good job in protecting the Arctic environment. We don’t have a lot of time to develop workable, cooperative frameworks, including on security issues. We don’t have 20-40 years to draft conventions. We may only have five to ten years before witnessing a seasonally ice-free Arctic ocean. There is a possibility of disputes leading to conflict over the delimitation of the sub-surface of maritime zones. We should be grateful for the amount of international law that is already in place. Article 76 of UNCLOS offers a detailed dispute settling mechanism. Alan Beasley was a Canadian lawyer who worked on this. It’s a good instrument and it applies to Arctic. The US is taking steps to ratify UNCLOS; Bush has asked Senate to ratify; the Senate Foreign Relations Committee has recommended ratification; and in all likelihood the US will ratify while Bush is still in office. Then, five of five coastal states will be in this dispute settlement process. Some non-coastal states want an ad hoc mechanism instead of UNCLOS. He believes UNCLOS applies to all oceans. UNCLOS is a “very precious thing.” He is concerned about overlapping

claims. The Arctic countries need to discuss and engage. Yet there are barriers to cooperation, which is unreported by media; the media is more interested in conflict. It’s crucial to get more reporting on cooperation. Conflict reports can be self-fulfilling. In at least two Arctic countries, sovereignty touches an emotional cord. The Canadian government recently blocked the sale of a Canadian satellite company as a threat to Arctic sovereignty. Arctic sovereignty also resonates in Russia, which planted a titanium flag at the North Pole, as a publicity stunt probably having more to do with Russia’s presidential election. Sovereignty can exist in different degrees. He cautions against viewing sovereignty as the problem. Re the Northwest Passage: internationalizing it might not be in the interest of responsible states; it may contribute to a wild west. He is trying to encourage US decision makers to re-consider Canada’s claim that passage is in Canada’s internal waters. On the Arctic NFWZ idea: I endorse the suggestion by Ekeus that Canada, Denmark, and Norway should consider formalizing their de facto nuclear-weapon-free status.

Discussion

Questions and comments were addressed to the following issues:

- In the case of the Antarctic Treaty, nobody owns that territory, so there is no territorial sea. If so, how do you measure boundaries? What are baselines? Is there a similar situation in the Arctic? Another speaker said the UK is making a new claim in the Antarctic, a dubious move. All land areas in the Arctic have been claimed by nation states. Spitsbergen and Hand Island are curious situations.
- Another speaker said that the Antarctic Treaty’s Article 4 does not allow new territorial claims in the Antarctic. There have been three submissions on territorial claims: by Australia, Norway, and Russia. The issue concerns more the limits of the continental shelf. The Commission on the Limits of the Continental Shelf has asked the Russians for a revised submission.
- Thick ice still exists; the Arctic is still a dangerous place to travel. The Arctic is actually a desert – it gets little precipitation a year; ponds are drying up com-

pletely; this is a big change. On Asia/Europe transportation, carbon credits for saving fuel should help local communities.

- Treaties with indigenous people are part of Canada's constitutional fabric. Indigenous peoples believe the government is not listening. Treaties are based on use/residency rights. The Nunavut "marine council" not yet implemented. He wishes the Canadian government would pay attention to this.
- In US politics now, there is a debate under way on the bindingness of international law. Byers is a trifle optimistic about prospects for UNCLOS ratification in Senate; the right wing is still fighting ratification. McCain is wavering. What if a state insists on a claim despite Commission view? Where else might coastal states submit continental shelf extension claims? If rising seas move coastal lines, will sea borders change?
- The issue of sovereignty is too ideological and emotional. If the US joined UNCLOS, it would take ten years to establish a border. Russia is establishing its border application sooner. How serious is this 10-year limitation? What if a country misses the deadline?
- Why can't the North Pole stay an international area, governed through an international organization or the UN? Can profits be given to developing countries?

Responses addressed:

- The speaker agrees with Penniket on Nunavut Land Claims Agreement; yes, there is unpredictability. We don't need certainty, only an understanding of risks. For a "no regrets" policy. On a new multilateral treaty, read UNCLOS; it has a revenue sharing provision. Developing countries insisted on it. We don't have a lot of time: use UNCLOS not a new treaty. Don't get excited about oil/gas, let's move beyond fossil fuels.
- The speaker is pessimistic about the

ability to stop climate change; we need to prepare to adapt. He is unclear about Russian climate policy; the country is a major source of greenhouse gas; and is getting rich.

- States parties have obligation to abide by UNCLOS. The Lomonosov Ridge issues will need further delimitation. The area beyond national limits is common heritage of mankind; Article 82 – procedure based on volume, problematic. Russian issue; difficult; 10 year limit does not apply.

11:30 – 1:00 p.m.

CLOSED SESSION DISCUSSION

- A speaker reviewed the operation of UNCLOS in delimiting rights over the continental shelf. At issue here in the Arctic are not territorial disputes but differences over exploitation of resources.
- There is important work for Canada to do on the extended continental shelf. Canada has until 2013 to make a submission under UNCLOS. We are working on this now as a high priority. We are also cooperating with our neighbours, including Denmark, the US, and Russia. Russia ratified UNCLOS earlier so its submission is due earlier. Under the treaty, a party has ten years from ratification to make a submission. Forty countries have 2009 deadlines; there is a low likelihood that submissions will be on time. There have been Russian and Norwegian claims. If there's an overlap, standard international law will apply. There is no reason for disputes to lead to conflict. The US accepts UNCLOS as customary international law.
- Why is the Northwest Passage an issue? What is its status under UNCLOS? What does international community lose by it being Canadian?
- A strait linking high seas and used for navigation is an international strait (this is the US view of the Northwest Passage); Canada views it as within its in-

ternal territorial waters. There have only been about 100 transits of the Passage, about half by Canadian vessels. Does this mean this is a transit for international purposes? Another speaker asked, if just a matter of principle, does rest of world care?

- Reliable passage through the Northwest Passage requires an infrastructure that will cost a huge amount of money.
- What assurances does the Canadian government have that nuclear-armed submarines are not transiting through Canadian waters? Another participant: there have been two announced transits by such subs in 1950 and 1960s with participation by Canadian officials. Some NATO and bilateral agreements exist on this, which cannot be further discussed in public.
- Will melting ice ease transit or make it more complicated? How much traffic expected?
- Inuit don't have many opportunities to ask questions to federal officials. Why is there a hesitation of the government to use the Inuit? Prime Minister Harper doesn't even use the term Inuit. Yachts containing people calling themselves "Vikings" have landed; Inuit fed and housed them. Inuit are eyes and ears on the ground. Are there any ideas from other countries on how to get governments to engage with indigenous peoples?
- It is difficult to navigate the Northwest Passage, and is not that interesting for a nuclear submarine. This is a touchy subject. It would be easier for Canada to declare entire territory a NFWZ, not just the Passage. The participant supports cooperating with other non-nuclear-weapon states.
- UNCLOS should be applied to Arctic, we should all agree on that. There is nothing unusual about overlapping claims; they are resolved by negotiations, or adjudication. UNCLOS refers to straits used for international naviga-

tion – yet the Northwest Passage is not in fact used as Malacca, Dover, and Gibraltar straits. Is it time to resurrect the idea of a "coastal archipelago"?

- Melting ice can indeed make navigation more difficult. Icebergs are hard to locate (fog and waves, e.g.). Traffic varies with the navigation season. Shipping companies are now preparing ships for northern seas. There is much traffic out of Murmansk. Traffic is increasing in the northern sea route.
- The Canadian government is happy to speak with Inuit. On using Inuit in establishing Canada's sovereignty claims, we always include Inuit occupancy and use issues. We prefer to say that we "exercise" not "assert" sovereignty. We expelled Norwegian citizens claiming to be Vikings – this was an act of Canadian sovereignty; there was no claim by Norway that this was an international strait. On the "coastal archipelago", Bush made a statement at Montebello indicating that the US recognizes Canada's claim to territories of Arctic; he made no comment on the Northwest Passage.
- What is the difference between a coastal archipelago and submerged mainland? Is this rather like the Lomonosov Ridge issue?
- On the Viking ship issue – the group was arrested and fined in Norway; they were crazy people.
- There are large Russian economic centres in the North, but large numbers of people moved there, and they are not necessarily indigenous. Ethnic groups of north were represented in government even during the Soviet era. Some rich Russian oligarchs have been made governors of local northern regions; they have the responsibility to improve living conditions. Social problems there are resolved not by state action but by social welfare provided by corporate giants who moved to the North.
- The Arctic Council is moving from scientific to broader activities. Various

working groups existed before. After 1996, Sweden was least involved, as with Russia. The early Council agenda was set by scientists. The Council has produced legacy of cooperation, in oil/gas assessment, a human development report, studies of contaminants, and a database on human issues. The science agenda is changing in the Council – policy makers are trying to seize control of the agenda; a power struggle is underway in the Council (i.e., the science vs. the policy people). There is probably not a long-term divergence. China is now as an observer, along with others.

- Re the disbanding of the Office of Arctic Ambassador, is there any appetite in the Canadian government to reinstate that position?
- Closing that office was a political decision.
- What will this conference produce? What output?
- No joint communiqué. It's up to participants to choose the next steps. Our purpose was to stimulate dialogue. There will be a publication after conference, with a summary of the discussion. We want to take the discussion further, to search for multilateral cooperation and solutions. We want to see a series of conferences in circumpolar countries.

Noon: Keynote speaker, Thomas Berger, former Supreme Court Justice of British Columbia. Key theme: land claims issues

2:30 – 5:30 p.m.

CONTINUATION OF CLOSED SESSION DISCUSSION

- One speaker elaborated on the merits of NFWZs. People who are sceptical about their value may not fully grasp the concept of such zones, which are based on the basic philosophy that if I know that my neighbour doesn't have nuclear weapons, then I won't need to have them either. The Southern hemisphere is almost entirely covered by such zones.

The two Koreas are talking about establishing such a zone on the Korean Peninsula. The Antarctic Treaty is working very well. The situation in the Arctic is changing because climate change is making it easier to exploit mineral resources there. Since what is good in one region might not be good in another, it is worthwhile considering how various types of treaty regimes could be achieved. Several issues merit further discussion:

Geography

- It's important to determine the precise geographical area of the Arctic region. If there is a territorial dispute, then the Arctic treaty wouldn't yet be appropriate. Border conflicts would have to be discussed, and the countries in the area are reasonable enough.
- Certain that parts of the Arctic would have to be excluded from demilitarization. There are also unrecognized territorial claims. Nuclear submarines could be close to shore but not violate any treaty.
- The Bangkok Treaty [re the Southeast Asian NFWZ] not only covers land and territorial waters, but also the continental shelf. However, the rights to explore minerals are still not resolved with that treaty.
- The African zone tried to cover the entire continent, but one British-owned island, Diego Garcia, is now being used by the US Air Force as a support base for its bombers. There are conflicting claims concerning that military base. Russia has said that since it does not know what is stationed on the island, then it couldn't support the treaty.

Transit

- The nuclear powers want to keep their right of transit, including for ships carrying nuclear weapons, while local governments want to preserve their own rights over vessels crossing into territorial waters, including the right to give

permission for such transits.

- Some wonder, why create such zones if the relevant states are already parties to the NPT? The answer is that the zones do not allow the stationing of nuclear weapons. If a treaty establishing such a zone allows the transit of nuclear weapons in special circumstances, then the treaty does not totally exclude such weapons from the zone.

Environment

- While the NPT does not address environmental issues, the South Pacific treaty has a provision banning the dumping of nuclear waste inside the zone.
- The Central Asian zone had to deal with the environmental legacy from years of testing Soviet nuclear weapons in Kazakhstan. Russia has also opposed efforts to remove an article from the treaty that says previous agreements will remain in force, a stance that some states view as contrasting with the obligations of the new zone.

Mineral Resources

- With respect to the Antarctic Treaty, when resources were suspected to be present, this led states to the question, to whom will the resources belong?
- The short-lived Wellington Treaty opened up a possibility mining in Antarctica. The Madrid Protocol to the Antarctic Treaty, however, attached strict environmental conditions for mineral exploitation, amounting to a moratorium on exploitation.
- Similar challenges would probably occur when negotiating over the Arctic region.

General discussion on NFWZs and other Arctic security issues

- What should be the priority of the Canadian government be in establishing such a zone in the Arctic? The fundamental goal is to stop the proliferation of nuclear weapons, as well as to implement the

disarmament obligation under Article VI of the NPT.

- Should the priority be focusing on saving the NPT in 2010, or on establishing the Arctic zone? The government of Canada should reaffirm the goal of nuclear-free world, including through promoting such measures as the Comprehensive Nuclear-Test-Ban Treaty, a fissile materials treaty, de-alerting of nuclear weapon, negative security assurances [i.e., promises by nuclear-weapon-states that they will not use or threaten to use nuclear weapons against non-nuclear-weapon states], and the reduction of nuclear arsenals.
 - o The fact that a majority of countries belong to NFWZs is deceiving, since it is also true that – by population – most people live in countries that possess nuclear weapons. While an Arctic zone would certainly be an accomplishment, it is not currently viable, since the nuclear-weapon states continue to maintain nuclear weapons, while prohibiting others to acquire them. We also shouldn't be distracted from the need to address the challenges facing the NPT.
- All that is needed now for progress in establishing an Arctic zone is the political will to do so. Mongolia declared its nuclear-free status. The Treaty of Tlatelolco reaffirmed that only peaceful uses of nuclear energy would be done in Latin America and the Caribbean.
- The idea has been discussed of establishing the Zone of Peace, Freedom, and Prosperity in Southeast Asia, as raised at the UN General Assembly. While the idea is short of a NFWZ, it is still good. Maybe this might be a more suitable goal for people within the Arctic region. Other ideas would be use the model of the Antarctica Treaty, or emphasizing the need for extra-Arctic cooperation to enhance the NPT, by getting the nuclear-weapon-states to comply with their obligations.

- An Arctic NFWZ would really only be half free. Because from looking at the map, half the shoreline belongs to nuclear-weapon states, and they are not yet in a position to give them up. It also calls for NATO allies to re-examine NATO nuclear doctrine. This could be an agenda item for the next US Administration.
- It is also important to get Kyoto Treaty underway; it is important to the rationale for an Arctic zone.
- Comparing the various possibilities for establishing such a zone in the Atlantic or the Pacific, an Arctic zone would face unique geographical considerations.
- One difficult point concerns secrecy, or the absence of transparency. Neither Washington nor Moscow ever discloses the types or numbers of nuclear weapons in their respective stockpiles. Russia has greatly reduced the number of its nuclear submarines. Yet the task of establishing an Arctic zone is not getting easier. At the heart of the matter are deeper structural issues relating to arms control, the NPT, and applying existing treaties to the Arctic.
- Any NFWZ should serve the overarching goal of strengthening the NPT; it should not contradict the NPT, especially its Article VI. Hopefully the US and Russia will enter into a dialogue concerning the pending expiration of START I. They should also be discussing de-alerting and nuclear challenges in the Arctic region. They are located in close proximity, so they should focus their discussion on issues including the status of nuclear bombers and submarines. While it would be a good thing for Canada and other NATO nations to change their policies concerning nuclear weapons, it remains unlikely absent any progress in this bilateral relationship.
- This Conference has two dimensions – disarmament and Arctic priorities. While important, disarmament may not be the top priority on the Arctic agenda. Other problems such as climate change, human security issue, should also be addressed. Making another treaty might be the wrong approach, rather building regional or sub-regional organizations to deal with Arctic concerns. While the two dimensions are different in nature, some believe they should not be separated.
- The incoming US President should withdraw nuclear weapons that are stationed in Europe. The European would love it, while the American public wouldn't care.
- Noticing the shared characteristics between the Arctic and Southeast Asian NFWZ ideas, one speaker said that it may well be possible to establish such a zone in this region. It would help in eliminating certain types of weapons, and serve as a step towards nuclear-weapon-free world. However, it is easier to declare a de-nuclearized zone than to create such a zone where nuclear weapons are already deployed.
- Certain near-term factors must be considered: the NATO issue; how the Zone would fit with the climate change issue (would advocacy of the zone distract attention from addressing the latter issue?).
- The application of the International Whaling Commission in the Arctic was discussed. The issue had not been brought up at the Arctic Council, in relation to the stock and stock depletion of whales. There's a danger of not heeding local knowledge concerning the stock of whales, which seems far from depleted. Scientific data is telling us things that we didn't know 5 years ago, which confirm that the stock has increased. One major concern is that whales have been exposed to mercury. The issue of mercury is a threat to the whole world.
- India and China are building new coal power plants. The effects are global.
- Will climate change make the use of nuclear power safer or more risky? Will the Arctic region, with the impact of climate change, emerge as a marine region – with more pollution? Are we ready to

deal with the inevitable pollution? Will there be terrorist threats to address? The International Maritime Organization is looking at oil platform security, though IMO is being unresponsive in addressing Arctic issues.

- With respect to Nunavut and the “adjacency principle” (relating to fishing quotas), while the Maritime Provinces receive a fishing quota of 80 per cent, Nunavut received only 20 per cent. The ratio is discriminatory. The region should receive a larger quota, and assistance in infrastructure development. There is also no fishing harbour in Nunavut.
- Inuit live in Alaska, Canada, Russia, and Greenland. There is a potential for a regional non-governmental forum to bring together indigenous people from circumpolar regions.
- The issue of NFWZ is not being discussed in Finland. Rather, it is seen as a proposal under discussion in Canada. The Finland debate focuses on the effect to the Arctic from climate change and its security implications.

Acknowledgements

1 Prepared by Randy Rydell, United Nations Office for Disarmament Affairs, who gratefully wishes to recognize the assistance of the following student volunteers from Simon Fraser University: Phiriyaphong Chaengchenwet, Tara Coil, Calvin Comfort, Courtney Galy, Valerie Haentjens, Erica Hoiss, Jessica Kind, Pavlo Marchenko, Nadege Muhimpundu, Larissa Muir, Angie Riano, and Kyrylo Zdorny. The Rapporteur accepts solely responsibility for any errors that might appear in this report.

2 Rapporteur’s note: Since the discussion took place in accordance to “Chatham House Rules,” this report omits the identities of specific speakers during the discussion periods.



FIRST AIR HERCULES C-130 AT YELLOWKNIFE - PHOTOGRAPHER UNKNOWN

Problems of Arctic Security in the Twenty-First Century: A Proposal for a Dialogue**Wosk Centre for Dialogue, Simon Fraser University****April 11-12 2008**

Extensive and multi-faceted changes are taking place in the Arctic, and the region's significance in the politics of international relations, in regard to security questions – in both the narrow sense and in that of wider human security – and in regard to the human rights of its indigenous peoples, is perhaps greater than ever before. Climate change is bringing about a shrinking of the ice-cap and a reduction in the area of sea-ice, which may allow navigation through Arctic waters and will make for easier access to seabed resources. This, in turn, is already leading to the mobilization of competing claims to sovereignty, and in the absence of a clear and comprehensive legal regime, the countries of the region, like Canada, are seeking to increase their military presence there. A further factor here is that of the recent stepping up of tensions between the United States and Russia, which have historically confronted each other across the Arctic. Environmental change will also have a profound effect on the livelihoods of indigenous peoples, both directly and through its implications for the militarization of the region.

The purpose of the proposed Dialogue is to provide a forum in which senior officials from the circumpolar countries will be able to engage with each other, with representatives of the indigenous peoples, with scientists working on the Arctic environment, and with legal and security experts from the academic world, in discussion of the new problems of Arctic security. Through this means, it is intended to strengthen the search for cooperative security solutions, in the interests of environmental protection, demilitarization (particularly with regard to nuclear weapons and the establishment of a Nuclear Weapon Free Zone (NFWZ)) and the livelihoods and human rights of Arctic peoples. Whilst it is intended to bring the best scholarship to bear, the purpose of the Dialogue is not to contribute to the academic literature but rather to inform policy making and to promote the establishment of an appropriate, clear and comprehensive legal regime for the regulation of human activity, and international relations in the Arctic.

The Dialogue will be co-convened by The Simons Foundation and Simon Fraser University, under the auspices of the Simons Visiting Chair in International Law and Human Security, of the School for International Studies at SFU, and will be chaired by the first Chairholder, Ambassador Jayantha Dhanapala, former United Nations Under-Secretary-General for Disarmament Affairs, former Ambassador for Sri Lanka and current President of International Pugwash.

Organization:

The way in which it is proposed to go about the Dialogue, is that it should be in two parts. The first part, in which we expect there to be about 30 principals, will be open to the public and intended as a contribution to public information and public discussion on problems which are probably not as yet very well understood. The principals will include the heads of the national Pugwash organizations in each of the eight circumpolar countries, or their nominees, representatives from each of the six organizations representing Arctic indigenous peoples that are Permanent Participants of the Arctic Council, five or six independent academic specialists from different Arctic countries and a similar number of interested persons (both academics and politicians) from within Canada, as well as official representatives from departments of Foreign Affairs of the circumpolar countries. The second part of the Dialogue will be a closed-door session, under Chatham House rules, for the officials, representatives of the Arctic indigenous peoples and Pugwash members, with a small number of invited independent academics.

John Harriss
Director
School for International Studies
Simon Fraser University

Jennifer Allen Simons
President
The Simons Foundation

Program for Dialogue Conference

**PROBLEMS OF ARCTIC SECURITY IN THE 21ST CENTURY
FRIDAY, APRIL 11 – SATURDAY APRIL 12, 2008**

Co-convened by The Simons Foundation and the School for International Studies, Simon Fraser University, at the Morris J Wosk Centre for Dialogue, 580 West Hastings St, Vancouver, BC.

Thursday April 10: Arrival of participants at conference hotel: Delta Vancouver Suites,
550 West Hastings St, Vancouver, BC Tel: 604 689 8188

Friday April 11:

9:00 – 9:45am: Opening of Conference

Chair: Mr. Jayantha Dhanapala,
Simons Visiting Chair in Dialogue in International Law and Human Security

Welcoming Addresses:

Dr. Michael Stevenson,
President, Simon Fraser University

Dr. Jennifer Allen Simons,
President, The Simons Foundation

Keynote Address:

Ambassador Sergio de Queiroz Duarte,
UN High Representative for Disarmament Affairs and Undersecretary General

10:00am – 12pm: SESSION I – The Arctic Environment and the Impact of Climate Change

Chair: Professor John Harriss,
Director, School for International Studies, SFU

Presentations:

Professor Ola Johannessen,
Founding Director, Nansen Environmental and Remote Sensing Center, Bergen, Norway

Dr. Robie Macdonald,
Senior Research Scientist, Fisheries and Oceans Canada

Discussant:

Chief Joe Linklater,
Vuntut Gwitchin First Nation, Yukon

12noon – 1:30pm: Lunch (for invited participants)

Keynote Speaker: Mr. Chris Westdal,
Former Canadian Ambassador

1:30 – 3:30pm: SESSION II – Military Security in the Arctic

Chair: Mr. Jayantha Dhanapala,
Simons Visiting Chair in Dialogue in International Law and Human Security

Presentations:

Professor Mike Wallace,
Political Science, University of British Columbia

Ambassador Rolf Ekeus,
Chairman, Stockholm International Peace Research Institute

Discussant: Dr. Jozef Goldblat,
UN Institute of Disarmament Research

4:00 – 6:00pm: SESSION III – Human Security

Chair: Dr. John Richards, *Professor of Public Policy, SFU*

Presentations:

Mr. Tony Penikett,
Author, Reconciliation: First Nations Treaty Making, Douglas & McIntyre, 2006

Ms. Udloriak (Udlu) Hanson,
Senior Policy Liaison, Nunavut Tunngavik Inc.

Miss Darcie Matthiessen,
Climate Change Coordinator, Circumpolar Relations Dept., Council of Yukon First Nations

Dr. Franklyn Griffiths,
Professor Emeritus (Political Science), University of Toronto

Discussant: Mr. Bernard Funston,
President, Northern Canada Consulting

7:00pm: **The Simons Foundation Award Dinner (by invitation only)**

Saturday April 12

9:00 – 11:00am: **SESSION IV – National Sovereignty and International Law**

Chair: Dr. Adele Buckley,
physicist, engineer, environmental scientist, member Pugwash Council

Presentations:

Mr. Hariharan Pakshi Rajan,
Secretary of the Commission on the Limits of the Continental Shelf, UN

Dr. Tapani Vaahtoranta,
Director, The Finnish Institute of International Affairs

Discussant: Professor Michael Byers,
Canadian Research Chair in International Law and Politics, Dept. of Political Science, UBC

11:30am – 1:00pm: **Closed Door Discussions**

Chair: Mr. Jayantha Dhanapala,
Simons Visiting Chair in Dialogue in International Law and Human Security

1:00 – 2:30pm: **Lunch** (for invited participants)

Keynote Speaker: Former Supreme Court of BC Justice Thomas
Berger

2:30 – 5:30pm: **Continuation of Closed Door Discussions**

Reports of Sessions by Conference Rapporteur, Dr. Randy Rydell,
Office of Disarmament Affairs, UN, assisted by SFU student volunteers.

Closing Remarks:

Professor John Harriss,
Director, School for International Studies, SFU

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Let's keep the Arctic free of nukes*By Jayantha Dhanapala*

Friday, March 21, 2008
 VANCOUVER, Canada:

The region believed to have once been the land bridge across which the earliest human migration took place from Eurasia to the Americas promises today, as a result of climate change, to become a maritime conduit of increased global exchanges.

This has the potential of bringing nations together for peace and development. It also has the potential for disputes and conflict. At this point, we have an opportunity to make a choice.

We are all stakeholders in what happens in the Arctic - environmentally, politically, militarily and in every other way - as the ice cover melts.

Before the modern "gold rush" for oil, gas, diamonds and minerals begins to cause tensions among the eight circumpolar countries - Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden and the United States - a global regime should be established over the Arctic to mitigate the effects of climate change and for the equitable use of its resources.

In terms of military security, a choice can be made between returning to the rivalries of the Cold War or a cooperative arrangement like the 1959 Antarctic Treaty, which has preserved the area around that opposite pole "exclusively for peaceful purposes."

Already the eight countries are bound by the 1971 Seabed Treaty not to place weapons of mass destruction on the seabed beyond 12 miles off their coast.

Seven of the eight countries are also bound by the provisions of the UN Convention on the Law of the Sea, which can settle disputes over territorial claims in this mineral-rich area (the United States has yet to ratify the convention). Already, too, the eight countries have worked reasonably well for over a decade in the Arctic Council, especially on environmental issues, together with the permanent participants from indigenous peoples' organizations.

Yet as icebreakers begin the explorations and mapping of the Arctic seabed, there are ominous signs of the resumption of military activities with nuclear-armed submarines, aircraft patrols and heightened surveillance. It is timely therefore to raise the proposal of an Antarctic-type treaty for the Arctic.

There have been proposals before. At an early stage, the indigenous peoples themselves proposed a nuclear-weapon-free-zone in the Arctic. In 1958, the Soviet Union proposed a zone in Northern Europe free from "atomic and hydrogen bombs." In October 1987, Soviet President Mikhail Gorbachev called in Murmansk for an Arctic "zone of peace," directing his appeal especially to the Nordic countries. A Nordic Nuclear Weapon-free zone has also been discussed, mainly in academic circles, without ever becoming the subject of intergovernmental negotiations.

In August 2007, as a sequel to the flurry of claims and counter-claims in the Arctic, the Canadian group of the Pugwash Conferences on Science and World Affairs, an international organization that seeks to reduce the danger of armed conflicts, issued a paper calling for an Arctic Nuclear Weapon-free zone.

Advocating multilateral confidence-building measures to retard the pace of militarization while awaiting the strengthening of the Arctic legal regime, the group called for a nuclear-free zone in the territory and waters north of the Arctic Circle, beginning with the disputed waters of the Northwest Passage.

The Canadians drew special attention to the Antarctic Treaty of 1959. The paper noted the expiry of the START treaty in 2009 as an opportunity for negotiations to begin on the Arctic between the US and Russia. The NATO alliance, which regards nuclear deterrence as a key part of its military doctrine, was identified as another obstacle - and was probably why the proposal received a cold reception from the Canadian government.

Based on the provisions of the 1968 Nuclear Non-proliferation Treaty, existing nuclear-weapon-free-zone treaties cover some 113 countries and leave most of the Southern Hemisphere and Central Asia free of nuclear weapons. Achieving such an agreement in a region that includes two countries that together own 95 per cent of the world's 26,000 nuclear weapons, as well as NATO countries, would be very difficult.

But if the non-nuclear countries around the Arctic, together with the indigenous people, join with international civil society, pressure could be exerted on the United States and Russia to agree to an Arctic nuclear-weapon-free zone, primarily as an environmental measure to safeguard the Arctic.

As the Canadians proposed, an agreement could also be placed in the context of the negotiations that must begin now to replace the US-Russian START treaty and the Strategic Offensive Reductions Treaty, known as the Treaty of Moscow, which expires in 2012.

The model of the Antarctic Treaty, of course, is there. While ensuring the usual prohibitions - such as those against stationing nuclear weapons or dumping nuclear waste in the Arctic area - an agreement could guarantee the right of transit to nuclear-weapon state, as the 1985 Treaty of Rarotonga does in the South Pacific.

Another possibility is to convert the current agreement between the United States and Russia on the prevention of incidents at sea into a multilateral treaty. Like other confidence-building measures, the agreement does not directly affect the size, weaponry, or force structure of the parties. Rather, it serves to reduce the possibility of conflict by accident, miscalculation or the failure of communication and to increase stability in times of both calm and crisis.

In short, the means are many, but the time is now.

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